VIII.—1881.

REPORT

ON

THE "PARANGI DISEASE" OF CEYLON,

PREPARED BY

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REPORT

ON

THE "PARANGI DISEASE."

INTRODUCTION.

PARANGI DISEASE.

Introduction to Report.

Although the existence of an obstinate chronic endemic disease has been known to exist in Ceylon for centuries, it is only within the last few years the subject attracted the serious attention of Government, and that attempts have been made to arrive at a correct opinion as to its origin, nature, and treatment.

The following remarks, in 1866, by the Committee of the Legislative Council on Irrigation Works and Rice Cultivation may be said to have commenced the enquiry :—

The frequent outbreaks of cholera, said to be introduced by Tamil immigrants, and the prevalence amongst the people for many years past of a very fatal disease reported to be of a syphilitic character, have committed great ravages. The Agent reports that last year the entire population of a village, with the exception of three of the inhabitants, was carried off by cholera. It may be further remarked, in reference to the loathsome disease already alluded to, that in the Vanni no man, woman or child is believed to be free from it. The Committee are of opinion that a professional enquiry should be instituted into the character and progress of this scourge with a view to its mitigation.

In consequence of the above remarks, Colonial Surgeon Dr. James Loos, an experienced officer of the Department, was selected to report upon Parangi, with the following instructions from the Principal Civil Medical Officer, Dr. Charsley :—*

I have the honor to inform you that His Excellency the Governor has been pleased to appoint you to report on the subject of the depopulation of the Vanni district, as recommended by the Irrigation Commission.

The disease, commonly known by the term "Parangi," will naturally become the special object of your enquiry. Its history, the variety of its symptoms from its earliest stages to its termination, its influence on the health and longevity of the population, its predisposing causes, in regard to the habits, customs, diet, &c., of the people, and its hereditary tendency, are all points of interest into which I would suggest enquiry to be made, and—above all—as to whether there are any grounds for supposing that the disease is in any way connected with "syphilis."

I would, however, prefer to leave the details of the enquiry entirely to your own judgment, rather than to embarrass you with any instructions from myself.

You are at liberty to select your own time and the districts you may desire to visit, keeping in mind that a full report is more to be desired than expedition in its compilation.

I beg to enclose you some remarks which have been made on the subject by Mr. Russell, which have been forwarded to me by Government :—

"As the attention of the Principal Civil Medical Officer has been called by Government to the depopulation of the Vanni, or Bintenna districts of the Island, by the ravages of a disease, of which the precise character has yet to be ascertained, I take the liberty of offering a few remarks which may possibly tend to further the enquiry on this subject.

"In a Memorandum on the Demala-pattu, which I submitted to Government in 1860, I noticed the disease in the following terms :—

"'This is the Parangi or Spanish-pox, of which many of the diagnostics are more or less syphilitic, although its origin is rarely, if ever, venereal. The Parangi arises in the majority of cases from a cut or scratch, which refuses to heal in consequence of the impoverished state of the patient's blood. The virus then attacks the system, generally breaking out first in pustules on the face, and eventually covering the whole body with ulcers, while the sufferer rapidly declines in health and strength. The sickness is not often immediately fatal, but it is tedious and entirely ruins the constitution of its victim. The principal medicament used for it by the natives is 'seenappa,' a kind of yam.† The Parangi is caused by a miserable diet, of which the chief constituent is a grain called kurakkan.‡ It bears considerable resemblance to the disease known as 'Pellagra,' which commits fearful havoc among the peasantry of Spain, Southern France, and Northern Italy. The Pellagra originates in the employment as food of diseased grain, and exhibits the symptoms of some cutaneous eruptions and frightful debility.'

"It appears to me that in order that the proposed enquiry may be effectual, it should be conducted by one or two active and intelligent Medical Officers, who should visit every portion of the Island in which the malady is endemic, and should carefully note the variations, if any, which it exhibits under different conditions of climate, and the modifications, if any, which domestic habits

* Instructions to Dr. Loos, dated February 19th, 1868.
† Smilax chinensis.
‡ Eleusine Corocana.

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and diet cause in it. For example, when travelling during last year in the Tamankaduwa-pattu of the Eastern Province, I was struck by the contrast between the evident healthiness and vigor of the indigenous Moors and the haggard, sickly appearance of the Siṇhalese, their neighbours. What is the cause of this contrast?

"It seems necessary that the same person or persons should visit all the localities which may be chosen for the collection of data, in order to be in a position to form an accurate estimate of such data and of their relative value. The experience gained by the enquirer as he proceeded with his task would, it may reasonably be hoped, enable him to note many minor points which might escape the attention of a person newly engaged in the investigation, and still uncertain as to the best mode of conducting it."

Dr. Loos furnished a valuable report, which will be found in the appendix, and on his recommendation hospitals were established at Mullaittívu and Vavuṇiyá-Vilāṇkuḷam. Little else seems to have been done towards investigating the disease until the term in use attracted the attention of Dr. Gavin Milroy, when in 1872 he came across it in reading the hospital reports sent home to the Colonial Office. The following correspondence will indicate the course of the enquiry up to date. Too much credit cannot be given to Dr. Gavin Milroy for the interest he has always taken in the investigation of the epidemic diseases of the colonies. It is mainly to his writings and to the valuable work of Drs. Tilbury Fox, T. Farquhar, and V. Carter, "On the Skin and other Diseases of India and Hot Climates generally," that the present report on the Parangi Disease of Ceylon is due.

Dr. Milroy, writing to the Under Secretary of State for the Colonies in August, 1872, acknowledges the receipt of Ceylon Hospital Returns, and remarks :—

The Colonial Surgeon of Colombo, Dr. Loos, writes that opinions have been freely expressed in this country that the *Parangi disease*, endemic here, is capable of being propagated by vaccination, &c.* I am unacquainted with the nature of the malady by that name. The technical or medical appellation of it should be given.

Dr. Charsley, writing in March, 1873, in reply, says :—

With regard to Dr. Milroy's enquiries into the nature of the Parangi disease, I have the honor to state that it has no technical appellation, but it is a form of disease which pervades certain parts of the interior of the Island and very seriously affects the population.

There is a difference of opinion among medical men as to its real nature and origin, some believing it to be of a syphilitic origin, while others think that it is of the nature of a land scurvy, aggravated by scrofula.

Dr. Loos was appointed, on my recommendation, to travel through those portions of the interior where the disease most prevailed, and was said to be depopulating the country. I cannot do better than attach to this communication copy of Dr. Loos's report. An effort is being made by Government to check the progress of this disease by direct treatment, and a very intelligent medical officer has been stationed in its centre. He has furnished an able report on the histology of the disease, which will be attached to my annual report for last year.

Dr. Milroy, writing in June, 1873, to the Under Secretary of State for the Colonies, acknowledges letter from Dr. Charsley and report by Dr. Loos, and remarks :—

On perusing the last named document, I have been much struck with the marked analogy, in various respects, of this Ceylon endemic with the disease of Yaws in the West Indies.

Whatever throws light on the one, will doubtless serve to elucidate the other, and I therefore venture to suggest that Dr. Charsley's attention be drawn to the account of the latter malady, in the description of it by Dr. Imray of Dominica and Dr. Bowerbank of Jamaica, given in my recent report.

Dr. Loos, writing in October, 1874, in reply to Dr. Milroy, says:—

Previous to Dr. Charsley's departure from the Island he sent me Dr. Gavin Milroy's "Report on Leprosy and Yaws in the West Indies," and copy of a letter addressed by the latter to the Under Secretary of State for the Colonies, wherein he says that, having read my report on the Parangi disease, he was much struck with the marked analogy, in various respects, of this Ceylon endemic with the disease of Yaws in the West Indies, and suggests that Dr. Charsley's attention be drawn to the description of Yaws by Dr. Imray of Dominica and Dr. Bowerbank of Jamaica, as given in Dr. Gavin Milroy's report.

Dr. Charsley, in his letter to me, desired that as he had not time to give attention to the subject, I would express my views for the information of Dr. Gavin Milroy.

I have read the portion of the report relating to Yaws with much attention and interest. I may, however, state that I was not altogether ignorant of the existence of Yaws, and the possibility of Parangi disease being allied to it. One of the medical practitioners at Jaffna actually called it *Frambœsia*, and before drawing up my report I consulted, among other authorities, Dr. Copland's Dictionary of Medicine and the Treatise on Diseases of Skin by Dr. Schedel in Dr. Tweedie's Library of Medicine, in both of which I thought there were good descriptions of Yaws. The late Mr. Russell, then Government Agent of Jaffna, had suggested the resemblance of Parangi disease to *Pellagra;* and others called it *Land Scurvy.* I thought that it corresponded to descriptions of *Sibbens* or *Sivvens*, which formerly prevailed in the south-west of Scotland. Dr. Imray, in his report, states that Yaws, in the West Indies, was compared to the same complaint. After careful consideration, however, I dismissed the idea of any very close resemblance of Parangi

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* I may here state that there is absolutely no foundation for the statement that Parangi is propagated by vaccination. The disease prevails most extensively in districts where, owing to its presence, it is impossible to carry on vaccination.

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disease to Yaws, and the clear descriptions of the latter disease given in Dr. Gavin Milroy's report have tended, still further, to strengthen my conviction that the two diseases are not identical.

Since writing my report, I have not had opportunities of further observing Parangi disease, as I was shortly afterwards removed from Jaffna, and in the hospitals of Kandy and Colombo, where I have since worked, cases of it are very infrequent. I may state, in this connection, that it was my original intention to have pursued the study of this disease more closely than I have yet done, with a view to elucidate any points of resemblance or difference before drawing up the present report; but as no favorable opportunities have as yet occurred for such study, I am unwilling to defer expressing my views on the question referred to me any further.

Although I have thirty years of professional experience in Ceylon, I was but slightly cognizant of the existence of Parangi disease, and had no idea that it was so severely or extensively prevalent till I was sent to investigate it in the Vanni District. Cases are very rarely met with in the towns, and the disease exists only in the interior of the Island, especially in the Northern, North-Central, and North-Western Provinces. Credit is due to the Government Agents of these Provinces for having drawn the attention of Government to it, but more especially to the Irrigation Committee appointed by the Legislative Council in 1866, for having pressed an enquiry into the character and progress of this scourge with a view to its mitigation. Dr. Charsley, as Head of the Civil Medical Department, has not been slow to adopt the measures suggested in my report, and approved of by Government. Among the principal steps taken are the formation of a Medical School for increasing the number of well-informed medical practitioners, not less urgently required throughout the length and breadth of Ceylon than in the West Indies; the establishment of a hospital at Vavuniya-Vilāņkulam, the centre of a largely-infected locality; and the assignment of wards, in some of the other hospitals, for the special cure of the disease. These steps will no doubt contribute to our better knowledge of the disease, as well as to the amelioration of the sufferers, and the more indirect measures which are now so earnestly engaging the attention of the Government for the restoration of the ancient tanks and the general advancement of the districts where they exist, will diminish and perhaps in time extirpate the malady.

The previous want of attention to Parangi disease has not, in my opinion, arisen from indifference on the part of Government or the Medical Department. I am rather inclined to think that the disease has forced itself on our attention by its increased prevalence of late. It is certain that the depopulation of the Vanni, from other causes more than from its prevalence, has been operative in bringing it prominently to notice. As one of the fruits of the inquiry which has been thus directed to Parangi disease, we have the report of Dr. Danforth, who was placed in medical charge of the hospital at Vavuniyá-Vilāņkulam on its establishment in 1872. He writes after six months' observation of the disease; and in instituting a comparison between Yaws and Parangi disease, I shall avail myself of his description of the latter complaint.

Dr. Danforth says of Parangi disease that—"It is characterized in its early stages by cutaneous eruptions. They are either squamous, tubercular, vesicular, or pustular, according to the state of the constitution. If the general powers are not much lowered, the eruptions are either tubercular or squamous; when debilitated, they are either vesicular or pustular. Not infrequently all the varieties are met with in the same person at the same time, either the one or the other predominating according to the degree of debility."

My own report gives little information with regard to the character of the eruption in the incipient stage. The cases I saw were those in whom the disease was already developed, and probably enquiry from non-professional persons would have thrown little light on the mode of onset of the disease. I nevertheless regret that I have not paid sufficient attention to this point. There is a statement in my report "that many also complained of pains in the joints, and it was also stated that such pains were often the precursors of the eruption." Dr. Tilbury Fox, in his work on "Skin Diseases," while stating that opinions differ as to the nature of Yaws, mentions that "it is said to be an exanthem." He describes the disease as commencing with general debility, languor, and pains resembling rheumatism, and that the eruption then appears first papular then pustular. Dr. Bowerbank says that Yaws has an incubative stage, followed by feverishness and pains about the joints and bones, after which the eruption appears. From other parts of Dr. Gavin Milroy's report, it appears that Yaws occurs once in a lifetime, lasts only for a definite period, and that the sufferer obtains an immunity from it afterwards.

Parangi disease cannot be said to have the features of an exanthematous disease, although slight pains and fever may precede or accompany its appearance. It does not run a definite course, is very intractable to treatment, and a previous attack does not procure exemption from it afterwards.

The difference between Yaws and Parangi disease seems, however, to me to be chiefly in the character of the ulcers in the two diseases.

The strawberry-like excrescences or fungous growths characteristic of Yaws, and which, in fact, have given to it its name, I have not found in any case of Parangi disease. There are elevated scales, but no excrescences from the surface of the ulcers. Dr. Danforth's description corresponds with that given by myself. He says: "Psoriasis is by far the most frequent of these eruptions; it is often associated with fissures of the skin, affecting chiefly the palms of the hands and soles of the feet. The next in frequency are the tubercles; some of them are small, rounded, hard, and elevated above the level of the skin, developing in small circular groups, with healthy skin intervening and forming a round centre to each patch; while others are large, soft, isolated, and little elevated above the surface. These are generally scattered over the whole surface of the body. The vesicular and pustular varieties are not of very common occurrence, and are chiefly found in children of a broken constitution."

I have no doubt that Parangi disease, like Yaws, is often associated with Scabies, Tinea, Impetigo, Ecthyma, and other cutaneous maladies; but I am unable to refer Parangi disease itself to any special class of skin affections. If it were not for the peculiar circumstances under which it occurs, I should look upon the characters of the ulceration as pertaining to Syphilis or Scrofula.

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Another ground of difference between Parangi disease and Yaws appears to me to exist in the affections of bone so commonly met with in the former, and to which little or no reference is made in the description of Yaws. Dr. Danforth says : " Besides these affections of the skin, the bones and joints are often diseased. Nodes form on the bones of the head, the forearms and legs ; swelling and pain are also complained of in all the large joints ; not unfrequently the bones of the metacarpus and metatarsus are affected. The tibia in many cases arches forward. Circumscribed hard, indolent tumors, varying in size from that of a pea to that of an arecanut, often form in the subcutaneous areolar tissue ; these are chiefly met with over the ribs, the hip-bones, and in the neighbourhood of joints." In my own report these affections of the bone are alluded to, coupled with remarks on the abuse of mercury.

It appears to me to admit of question whether the nodes, affections of the bones, and rheumatic pains should not be regarded more as the results of injudicious administration of mercury than as the sequences of the disease itself.

A further difference is, in my opinion, to be found in the eminently contagious character of Yaws. Parangi disease, although said to be contagious, has not been found so in places where it does not prevail. Cases admitted into public hospitals in our large towns have not been isolated, and have mixed freely with other patients, and not a single instance has been known in which the disease was contracted by such association. I cannot say what may be the result of direct inoculation, and in the practice of vaccination in this country we are not unmindful of danger from this source. Parangi disease seems rather to be endemic and traceable to hereditary influences, combined with local causes, than to spread from contagion.

Another point of difference, to which perhaps much importance may not be attached, is the presumed origin of the two diseases. Yaws is generally believed to be of African origin. Although there were African slaves in Ceylon in the time of the Portuguese and the Dutch, they were not numerous and did not mix with the general population. The tradition of this country derives Parangi disease from the Portuguese, and the name " Parangi," like " Firingee" in India, is to this day applied to persons who are supposed to have descended from the Portuguese. If Parangi disease be syphiloid in its nature, this circumstance is interesting in connection with the history of Syphilis, for that disease came into prominent notice in Europe at the end of the fifteenth century, and the Portuguese obtained a footing in this Island at the commencement of the sixteenth century.

Although I doubt the identity of the two diseases, there are many points of similarity, and the description of Yaws as regards its progress and consequences, and the insanitary conditions under which it prevails would apply in a very striking manner to the disease in this country. The foul ulceration extends over large portions of the surface, and it exists chiefly about the joints, producing contractions and deformities by which the patients become crippled. A peculiar cachexia results. The disease is not fatal to life, but the victim drags through a miserable existence, and falls an easy prey to other diseases. Another striking point of agreement is the amenableness of both diseases to mercurial treatment. Many cases of Parangi disease have of late been treated with iodide of potassium with much benefit, but therapeutic means, equally successful with and less objectionable than mercury, remain to be discovered.

In my report I stated my reason for thinking that Parangi disease is syphilitic in its nature ; and led by certain views enunciated by Erasmus Wilson in his work on Skin Diseases, I called Parangi disease a variety of *Lepra* or *Psoriasis*. Dr. Danforth says : " It is a peculiar form of Syphilis, degenerating into Leprosy." I consider that the disease has no relation whatever to Leprosy (*Elephantiasis Græcorum*). Whether I am right in the belief that Parangi disease is a form of constitutional Syphilis, or whether it is (as many consider Yaws to be) a disease *sui generis*, must be determined by the observation of others who will now have opportunities of watching the natural course of the disease uninfluenced by mercury, and of studying it in its various forms and stages.

Dr. Milroy, writing in February, 1875, to the Under Secretary of State for the Colonies, says :—

I have read with much interest Dr. Loos's letter about the Parangi disease of Ceylon, and find that my surmise as to the malady being analogous in various respects to the Yaws of the West Indies, is borne out by Dr. Loos's observation that " there are many points of similarity, and the description of Yaws, as regards its progress and consequences and the insanitary conditions under which it prevails, would apply in a very striking manner to the disease in this country."

As I have been lately preparing a paper upon these two endemic cachexia, which I intend submitting to the Colonial Office, I need not say more at present.

On the 1st of December, 1877, the Colonial Secretary wrote to enquire : – Is Parangi contagious, and how long would the patients, if collected in Galle or any temporary hospital, require to be under treatment ?

In reply I reported as follows :—

That this disease has never been considered contagious, as spreading by contact or intercourse with persons affected with it, is proved in our hospitals, where large numbers of persons, with open sores and discharges from them, have been constantly attended to and dressed by hospital attendants, who have never taken the disease by handling the patients.

It is the general belief that the disease is propagated by inter-marriages or cohabitation.

The disease, having passed through several generations, has become constitutional, and its effects on the body have, in many cases, all the characteristic features of Syphilis.

Indeed, from time immemorial, it has been regarded in the East as originating from Syphilis, which was introduced by the Portuguese ; hence the name " Parangi," which is synonymous with Portuguese. This belief is further strengthened by the fact that mercurials and vegetable remedies, used by the natives in the treatment of Syphilis, have also been applied successfully in the treatment of Parangi. I may also add that under the term several forms of ulceration are included—some specific, and others simple and probably innocent.

With regard to the second of the inquiries—namely, How long would the patients, if collected in the Galle or any temporary hospital, usually require to be under treatment?—I beg to state that the disease, as it prevails at present, does not admit of a radical cure, but only of alleviation. It has been found that patients, who have been benefited by our hospital treatment for periods varying from one to three years, returning to their native villages, the old ulcers have broken out after a time, which makes them apply for re-admission.

I may here state a fact of some interest and importance in connection with the Parangi disease. A Sinhalese doctor, named Silva, who professed to be able to radically cure it, was employed by Government in 1874 at the Galle and Mátara hospitals to effect the professed cure, and a large number of patients was placed under his treatment, but it was found that the remedies he employed, being chiefly mercurials and vegetable powders, though effecting a temporary relief, led to no real recovery from the disease, which broke out in its old forms after the patients were discharged from the hospital. The same results have followed the trials made at Vavuniya-Vilánkulam and Mullaittívu hospitals, which were built with the especial object of curing cases of Parangi.

As far as I can see, the only effectual mode of ultimately eradicating the disease is by ameliorating the condition of the people, by teaching them to adopt hygienic measures, segregation, the use of wholesome and nutritious diet, with a good and pure water-supply, for it is well known that sufferers from Parangi disease live on food of the least nourishing character, while their habits of life are extremely filthy, and their houses of the most wretched description, built on unhealthy sites where all sanitary laws are set at defiance.

I believe these are the only means—namely, by improving the physical condition of each successive generation—by which the disease may very gradually be stamped out.

In July, 1878, the Secretary of State for the Colonies referred an extract from the Medical Report on the Ceylon Hospitals to Dr. Gavin Milroy in the following words:—

The extract refers to the supposed existence in Ceylon of the disease called Yaws, and Sir Michael H. Beach will be glad to receive any suggestions from you with regard to its treatment, should it appear to you to be really the disease of which you have acquired so much experience in the West Indies.

In reply, Dr. Milroy says:—

I have the honor to acknowledge your letter of July 25th together with an extract, in origiual, from the interesting report on hospitals in Ceylon for 1877, and to offer the following observations. I return the printed extract, and beg to say that a copy of the entire report would be acceptable to me.

1. The prospect of obtaining, by Dr. Kynsey's exertions, an exact distinctive description of the diverse forms of ulcerative disease and skin affections whieh have been grouped together under the general term "Parangi," will be valued in this country and elsewhere. This work may greatly serve to promote a more accurate diagnosis, than has hitherto been made, of various endemic maladies in different tropical countries. I would add, that if a few colored drawings could be had of the more rare and questionable skin diseases, specially of Yaws, they would be very acceptable to the profession.

2. I have little or no doubt, in my own mind, that the cases of suspected Yaws in Ceylon, and generally classed together, by the native practitioners, with various other forms of disease, are, if not identical with, analogous and allied in essential character to the genuine Yaws of the West Indies. The absence of the *frambœsoid* fungus, in the cases hitherto observed in Ceylon, may possibly be due to the circumstance that most of the cases were old, chronic, and neglected instances of the malady, such as I saw in Dominica, and in which I found scarcely any examples of the raw-flesh excrescences. This feature of the disease has, as doubtless Dr. Kynsey knows, been distinctly recognized in the "Coko" disease of Fiji, which is unmistakeably Yaws.

3. With respect to Dr. Kynsey's remark that "it will be strange if the disease is confined to Ceylon, and unknown on the continent of India," the same thought had occurred to me, and I have accordingly drawn the attention of my friend, Dr. Cunningham, Sanitary Commissioner with the Government of India, to this point, in connection with the official investigation on Leprosy now being conducted throughout the Peninsula. Dr. Cunningham would, I am sure, be gratified by learning Dr. Kynsey's observations from himself, as he is much interested in the enquiry that is being carried on under his supervision, and of which the first instalment of the report was published last year in Calcutta.

4. As the Secretary of State desires to receive any suggestions with regard to the treatment of the disease, I beg to suggest that a copy of my letter to you, on Dominica, of March 15th, 1878, be sent to Ceylon, as it embraces most of my views respecting the desiderated management of Yaws patients, and Dr. Kynsey will thereby be enabled to judge of the state of things which has served to perpetuate and aggravate the malady in one of the West Indian Colonies.

In 1879, I compiled and issued a scheme for the systematic investigation of the history, nature, and affinities of the disease, and a copy was forwarded to every Medical Officer in the Department, with a register in which all cases of the disease that came under treatment were to be entered. The following is a copy of the scheme which contains, I think, all the points required for enquiring into the disease and for arriving at an accurate diagnosis as to its nature:—

A Scheme for investigating the History, Nature, and Affinities of Parangi Disease.

I.—*Preliminary Remarks and Object of Enquiry.*

By a careful study of the history, variety of its symptoms from its earliest stages to its termination, and of its etiology, to ascertain, if it can be identified with any affection known to medical

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science, and, if so, to place it in its proper position in our nosology and classification, and discontinue the use of the misleading name by which it is at present recognized in Ceylon.

2. If it is found impossible to identify it with any known disease, it will be necessary to enumerate the diseases with which it is allied, pointing out their resemblances and differences, and then to describe the characteristic and essential symptoms and appearances which will justify its differentiation as a disease *sui generis*.

3. To ascertain its exact topographical distribution and prevalence in the Island, with the two-fold object of affording the best system of treatment for the sufferers, and moving Government to adopt active measures for the prevention, or at least limitation, of this widespread, loathsome, and destructive disease.

II.—*Definition and Description of Disease.*

The term Parangi is constantly used to describe venereal diseases, especially Syphilis ; but upon close enquiry it will be found, after separating all such affections and well-known skin diseases, that there is a peculiar malady prevailing extensively in several districts to which the name is also applied.

The disease is stated to commence with febrile symptoms and pains in the bones, followed by the appearance of a number of small papules situated upon or beneath the skin ; the papules are succeeded by pustules or tubercles. The eruption comes out in successive crops on various parts of the body, but especially upon the legs, arms, nates and neighbourhood of the anus, face, around the mouth, and on the sides of the abdomen and chest. The pustules burst and become quickly covered with prominent, dry, yellowish, rupial-like crusts or scabs, upon the removal of which a raw flesh-like surface or ulcer is exposed, frequently raised considerably above the level of the surrounding skin, and furnishing a slight thin purulent discharge. In favourable cases, in young people, and in those with healthy constitutions, this primary stage ends by the scab falling off, and the ulcer or exposed surface healing without leaving any cicatrix, scar, or loss of substance, except in places where the inflammation has been great, and only a permanent dark stain on the skin to mark the site of the eruption. When the disease is neglected or improperly treated, in the old or in persons with enfeebled constitutions, the eruption is followed by extensive secondary ulcerations, often extending deeply, and leading to the loss of fingers or toes, and to permanent contraction when the ulceration heals in the neighbourhood of joints. The cicatrix left after the healing process is completed has a glistening reticulated appearance, lighter in colour than the surrounding skin, but although there is superficial loss of substance, it is seldom considerable in depth.

Dr. Loos thus describes the disease :—*

"Setting aside the cases which may be easily resolved into well-known forms of skin disease met with everywhere, there is an obscure class of skin diseases, intimately allied, and probably having a common origin, prevalent in the interior of Ceylon generally, and more especially in the Vanni. To this class I would restrict the term *Parangi*. The disease is met with in the maritime parts of the Island, but I am satisfied it is then in a mild and modified form, probably from the aggravating causes not being so fully in operation as they are in the interior. It is met with in both sexes and at all ages : the one sex is not more liable to it than the other, and it is equally common at all periods of life. The eruptions are either pustular or tubercular, less frequently scaly. The pustules are small, round, and scattered, with an elevated scab, as in Rupia. The tubercles are at first hard, but afterwards soften and give exit to pus; and the ulcers formed are apt to become sinuous. These frequently run together, and larger ulcers are formed, which are liable to spread. The sores are irregular in shape, in some parts deeper than at other parts, covered more or less with yellowish and dark-coloured crusts; the discharge ichcrous, but not copious. I found several persons with ulcers of this kind on the hips and thighs ; other parts, however, were also the seats of ulceration. Sometimes the ulcers were found healed in the centre, or were healing in one direction, while they were spreading in another, so that extensive portions of the surface were found cicatrized, while other portions were ulcerated. In children, ulceration was sometimes observed around the lips, and there were many cases of excoriations at the angles of the mouth, sometimes with white discolouration. In one village (Eraperiakulam) a child had a large ulcer on the right nates, excavated, with yellow sloughs ; and another child was in a wretched state of emaciation, with several ulcers on the body and ulceration of the nostrils. The eruptions on the children were pustules or tubercles, the summits of which appeared to have a thin mucous lining from which serum exuded, and some had decidedly mucous tubercles (*condylomata*) near the anus. In older children and adults, nodes and affections of the bones were common, and obviously connected with the progress of the disease. I met with several young people who had become crippled from this cause and from contraction of the cicatrices of ulcers about the joints. Many also complained of pains in the joints, and it was stated that such pains are often the precursors of the eruptions.

"Pustular eruptions were found in all parts of the body, including the face. The most common seats of ulceration were the hips, knees and elbow-joints ; but the dorsum of the foot, the back of the wrist and fingers, fore-arms and legs, were also in many cases ulcerated.

"Such are the characteristics of the disease in its aggravated form—a form which, unfortunately, is not rare in the places I visited. Milder cases exist, in which there are few scattered eruptions or circumscribed patches of ulceration. The general health is remarkably unaffected, and there are no signs of constitutional disturbance or great suffering, except in very severe cases. The disease is not viewed as fatal in itself, and from what I have observed it is troublesome and offensive, but does not materially shorten life, except perhaps in the case of very young children."

* Report on the Depopulation of the Vanni District, Northern Province, by James Loos, M.D., Colonial Surgeon.—Ordered by His Honor the Officer Administering the Government to be printed.—Colombo, 1868.

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Dr. Danforth thus describes the disease :—*

"Parangi-nasal is the most prevalent disease of the country. With a few exceptions, every one in the district has suffered from it at some period or other of his life. The disease, in my opinion, is a peculiar form of Syphilis, degenerating into Leprosy. It is characterized in its early stages by cutaneous eruptions. They are either squamous, tubercular, vesicular, or pustular, according to the state of the constitution ; if the general powers are not much lowered, the eruptions are either tubercular or squamous ; when debilitated, they are either vesicular or pustular. Not infrequently all the varieties are met with in the same person at the same time, either the one or the other predominating, according to the degree of debility.

"Psoriasis is by far the most frequent of these eruptions ; it is often associated with fissures of the skin, affecting chiefly the palms of the hands and soles of the feet.

"The next in frequency are the tubercules. Some of these are small, rounded, hard, and elevated above the level of the skin, developing in small circular groups with healthy skin intervening and forming a sound centre to each patch ; while others are large, soft, isolated, and little elevated above the surface. These are generally scattered over the whole surface of the body.

"The vesicular and pustular varieties are not of very common occurrence, and are chiefly found in children of a broken constitution.

"Besides these affections of the skin, the bones and joints are often diseased. Nodes form on the bones of the head, the fore-arms, and legs ; swelling and pain are also complained of in all the large joints. Not infrequently the bones of the metacarpus and metatarsus are affected. The tibia in many cases arches forward. Circumscribed, hard, indolent tumors, varying in size from that of a pea to that of an arecanut, often form in the sub-cutaneous areolar tissue ; these are chiefly met with over the ribs, the hip bones, and in the neighbourhood of joints.

"As the disease advances ulceration sets in, the ulcers commencing in the cracks and fissures of psoriasis, or in the tubercles, pustules, and vesicles. Not infrequently the ulcers originate in boils of a chronic character. The ulcers in many patients are found in all parts of the body, chiefly on the fore-arms and legs; they are circular with elevated edges, and spread in every direction, destroying deeply the affected parts. The secretion of these ulcers is an unhealthy pus, or a mere watery ichor. Not infrequently the ulcers are irregular and foul, spreading on one side and healing on the other.

"At last symptoms of a formidable character supervene, and all sorts of deformities ensue. The nose, palate, and the cheeks ulcerate ; the nodes terminate in caries ; the globular tumors soften and break ; the fingers and toes mortify ; the hands and feet lose their sensibility, and pricking pains are often felt in them ; the feet enlarge by the thickening of the tissues, and blebs of various sizes form in them and lead to obstinate ulceration.

"Simultaneous with the local manifestations of the disease, a peculiar cachexy declares itself, and the patient becomes pale and anxious with depression of spirits. The surface of the body acquires a peculiar clayish colour and a glazy appearance; not infrequently it is covered with dry scaly epidermis. The appetite is impaired ; the muscular strength greatly diminished ; and the circulation grows languid. The patient complains of pains in the limbs and inability for exertion ; and is at last left in a state of extreme exhaustion, induced by the weakening discharges, growing debility, and constant pain.

"The disease in some cases is developed in infancy, whilst in others the constitutional tendency to it remains dormant until the age of puberty, very rarely to a later period. Some individuals are more or less affected with it during the most part of a long life without experiencing any great inconvenience from it. Commonly, however, one or more of the distressing symptoms, already enumerated, appear before adult age.

"The disease appears to be as frequent in males as it is in females, and not influenced by sex. A cold humid atmosphere has a prejudicial influence over the disease, aggravating its existing symptoms ; and it assumes a certain degree of malignity during the wet weather. The disease is perpetuated by inter-marriage.

"The disease is hereditary. Not infrequently it is acquired by cohabitation, and it is also said that it is generated in children playing together or partaking food with the diseased. Wounds and ordinary ulcers often assume the character of this disease."

Marshall, in his work on the Medical Topography of Ceylon, enumerates several varieties of Parangi,† and thus describes the disease itself :—

"The eruption made its appearance after febrile symptoms of three or four days' standing. The coming out of the eruption was not immediately followed by a return of health. Pains of the limbs, impaired appetite, languor, and a reduction of strength continues for some time. For the most part the eruption appeared first on the face: generally, however, it eventually extended over the body. The protuberances were most numerous on the face, in the axilla and groins. Sometimes after an attack of fever, a fresh eruption occurred before the preceding one had entirely disappeared. The eruption in some cases was remarkably protuberant. For the most part the protuberances were circular, from a quarter to a third of an inch in diameter, smooth, and in general they were flattened on the top. After the lapse of an indefinite period, the cuticle which covered the protuberances burst, a glairy fluid then oozed from the ruptured spot, which by drying formed an elevated gray-coloured scab. Some of the large scabs covered spongy granular excrescences."

* Administration Report of the Principal Civil Medical Officer and Inspector-General of Hospitals for 1872.

† Notes on the Medical Topography of the interior of Ceylon, by Henry Marshall, Surgeon to the Forces.—London, 1821.

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The varieties are,—

Alu parangi (අළුපරන්ගි)
Odí parangi (ඔඩීපරන්ගි)
Goni parangi (ගෝනිපරන්ගි)
Kushṭa parangi (කුෂ්ඨපරන්ගි)
Dada parangi (දදපරන්ගි)
Geṭa parangi (ගැටපරන්ගි)
Aramana-wana parangi (අරමනවනපරන්ගි)

Besides these there are several terms in use amongst the people and vedaralas, such as Dumas (දුමස්), a disease of the feet, Pínasrógé (පීනස්රෝගේ), Eṭapalárógé (ඇටපලාරෝගේ), and Panukewilla (පනුකැවිල්ල), often used for the after-effects of Parangi, which it is very desirable to have accurately defined and described. It is evident from the descriptions given of the disease, especially by the native vedaralas, that several probably distinct affections have been included under the term, and, as regards its nature, that it is supposed to be either syphilitic, a form of Leprosy or Lupus, or a disease *sui generis*.

In paragraph V. will be found a few remarks on the three named diseases which may be useful in arriving at an opinion, but it is to be distinctly understood that the object specially aimed at by this enquiry is a collection of *facts* from the different districts of the Island where the disease prevails.

III.—*Instructions for the Systematic Investigation of the Disease.*

Give the past and present history of the case.

1. Obtain a history of the case, and note the present condition of the patient as regards general health, diathesis, temperament, age, sex, race, occupation or mode of life, past history of patient, and of eruption.

Mode of onset and period of incubation.

2. Ascertain the mode of onset of the disease, the duration of the latent or incubative stage, if there is any, the early constitutional symptoms, and if they precede, accompany, or follow the eruption.

Constitutional symptoms.

Can the symptoms of the disease be divided into distinct stages? If so, the duration of each, and total duration of the disease.

Investigate the subjective symptoms.

3. Subjective symptoms. Note if there is any itching, burning or tingling sensation complained of, and observe any marks of scratching which may be present, and if it is auto-inoculable.

Examine all parts of the body where any eruption is present.

Observe the exact locality affected, and distribution of eruption.

4. Carefully examine every part of the body where there is any eruption; note the order in which the several parts became affected, and if previous to the appearance of the eruption there was any scratch, sore or abrasion, or if the skin was unbroken. The condition of each patch of eruption should be noted at the time of making the examination. Observe if the eruptions follow the course of any particular nerve, if the area of the disease is diffused or circumscribed, and if there is any marked difference in the size of the patches of eruption. Describe the shape or form of the patches.

Ascertain the earliest appearance of the eruption as described by the patient or actually observed by yourself. its progress, and if there is only one single evolution, or if it comes out in successive crops. For minute examination select those portions of the skin where the disease is least complicated, and compare the sound portions of the skin with the diseased.

Separate the eruption into its component parts, distinguish the essential from the superadded.

Distinguish what is essential in the eruption from that which is non-essential or accidental; what belongs to the original affection from what has been superadded.* Did the eruption originate from contagion or spontaneously?

Termination of eruption.

Description of the ulcers.

5. Describe the ulcers which form after the appearance of the eruption. Their most frequent situation, and number, size, consistence, colour, shape, secretion or discharge (if any), crust, and the surface after its removal, and whether the exposed part is sensitive or not, if elevated or depressed in relation to the surrounding parts, its edges, areola if any, and the progress of the sore from the first to its healed condition. If the crust falls off, is it replaced?

If you find ulcers upon any part of the body originating independently of the eruption, describe them.

General condition of skin.

6. Describe the general condition of the skin. Is the eruption preceded, accompanied, or followed by any peculiar state of the cuticular surface of the body? Is it unusually dry or moist? Examine the mucous membrane of the mouth and throat.

Determine the tissues involved.

7. Determine as early as possible the original anatomical seat of the disease and then the extent to which the neighbouring tissues are involved; note, if possible, the exact extent to which each element of the skin is affected, and whether the disease is confined to the cuticle, true skin, hairs, sebaceous glands, follicles, or to alterations in the pigmentary layer only, or if all are involved in the disease—

† (*a*) Condition of epidermis.
(*b*) Follicles.
(*c*) True skin.
(*d*) Beard and hair.
(*e*) Colour—any divergence from the normal.

---

* Modifications in skin diseases are brought about by remedies, diathesis, chronicity, scratching, abortive development, and by the intermingling or co-existence of two or more different diseases (*Fox*), to which may be added food and climate.

† (*a*) The epidermis may be rough, dry, scaly or thickened by the accumulation of ephithelium as in Psoriasis, abnormally thin or transparent, or the outer layer may be raised by the formation of vesicles or pustules.

(*b*) The orifices of the follicles may be plugged with sebum as in comedones, or may pour out an abnormal quantity of oily matter; papules may be present formed from the hair follicles or by enlargement of papillæ of skin.

(*c*) The true skin may be infiltrated, which is ascertained better by sense of touch than by sight.

(*d*) The beard and hair may be either removed too easily or too brittle; force required for removal should be noted, and an examination under microscope made of shaft and root with and without Liq. Potassæ.

(*e*) Colour. Any divergence from the normal may be due to altered degree of vascularity, hemorrhage, irregular pigmentation, jaundice.

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8. To arrive at a correct diagnosis, first take a general view of the eruption as a whole, irrespective of the elementary or secondary forms,* then take cognizance of those separate parts which combined form the disease.—(*Liveing.*)

Most cutaneous diseases are inflammatory in their origin (plastic or catarrhal), the first stage or that of congestion being followed by the escape of fluid from the vessels which, if plastic, forms solid elevations or papules, serous forming vesicles, or pus giving rise to pustules.—(*Fox.*)

Carefully separate the phenomena of the disease into primary or eruptive, secondary or ulcerative, and sequelæ, which latter enumerate and describe in the order of their observed frequency.

By a careful study of Parangi, ascertain if there are any morbid conditions of the constitution co-existing with the disease, such as Syphilis, Leprosy, Scrofula or Lupus, or if any peculiar cachexia accompanies it.

Finally, decide the class of disease to which you can refer it.

Is it a general disease or merely an affection of the skin? Is it an acute specific disease or parasitic, or a syphilide, or a non-specific exanthem, or does it run its course attended with exudation, or hemorrhage, or with a deficiency, excess, or mal-distribution of pigment; or is it an affection of the hair follicles, sebaceous glands; or does it consist in destruction of tissue, or hypertrophy or a neurosis, or is it a form of gangrenous inflammation?

9. If you have the means at your disposal, make a microscopical examination of the discharge from the ulcers and of the blood, recording anything peculiar. Microscopical examination.

10. In case of death record the post-mortem appearances.

IV.—*Instructions for Medical Officers in drawing up a Report on the Parangi Disease in their Districts.*

1. The names of the villages infected in your district, with the population† of each, and the number of cases,‡ approximative, if the actual number cannot be given.

2. Is the disease among the inhabitants?

(*a*) Persistent—*i.e.*, always existing?

(*b*) Is it liable to increase, decrease, or disappear? If so, to what causes do you attribute these alterations? At present is it decreasing or increasing? Are there sporadic outbreaks? Is the disease ever epidemic? Have you noticed any disproportion in the number of males and females in your district, or in the number of children to a family? Average number of children to a family?

3 Is the disease hereditary?

Have you ever seen a congenital case?

4. Etiology.

Give the local, personal, predisposing, and exciting causes of the disease.

Describe:—

(*a*) The state of the dwellings.

(*b*) Personal habits.

(*c*) Nature of food, water-supply, &c.

5 Is it contagious or non-contagious?

(*a*) Is it communicable by direct contact with the sick? Is it auto-inoculable by scratching?

(*b*) By the clothes they have recently worn?

(*c*) Can it be communicated by sexual intercourse?

(*d*) Can it be spread by a recent arrival in a district which was previously free from it?

(*e*) Have you known any case where the disease has spread among the patients in a hospital ward owing to the admission of a person suffering from the disease?

(*f*) Have any of the hospital attendants ever contracted the disease from patients suffering from Parangi?

(*g*) Can a child communicate the disease to the breast of the mother when sucking?—
(*a*) when the skin is unbroken;
(*b*) when there is a fissure.

(*h*) Can the disease be communicated by inoculation to the lower animals.

6. Can Parangi be communicated in any other way than by direct contact of the virus?

(*a*) Is it necessary to have a sore or abrasion?

(*b*) Can it be communicated when the skin is unbroken?

(*c*) Can the disease arise spontaneously?

7. Does the disease run a definite course, and what is its ordinary duration?

8. Will it attack well-fed and half-starved persons alike, if both are equally exposed to the same conditions?

(*a*) Have you known a case to occur among persons living in comfort and habits of personal cleanliness?

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* The elementary forms or primary lesions are red patches, papules, tubercles, maculæ or spots, vesicles, bullæ or blebs, pustules, wheals or pomphi, petechiæ, vibices, and echchymoses. The secondary lesions are excoriations, fissures, chaps or rhagades, scabs or crusts, ulcers, scars or cicatrices. "These varying phenomena are brought about by the anatomical structure of the skin and are of uncertain value in determining the nature of the inflammation."—*Fox.*

† From last Census.

‡ Return to be furnished by Headmen according to annexed form.

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9. Can a person be attacked with the disease more than once in a lifetime?

(*a*) Is it liable to recur?

10. Have your traced any connection with reference to the origin of the disease and the intermarriage of near relations?
11. Have you found the eruption to exist in connection with disease of any organ?
12. What influence has the disease on the health and longevity of those attacked?
13. Have you known an instance where a patient was attacked with Syphilis, who had previously suffered from Parangi, and *vice versâ?*
14. Is inoculation ever practiced by the people for its prevention or cure, or for any other purpose?
15. What treatment have you found most effectual?

(*a*) Medicinal, internal and external.
(*b*) Dietetic and hygienic.

16. Is it amenable to treatment or curable?

(*a*) In its early primary or eruptive stage?
(*b*) In its secondary manifestations or sequelæ.

17. Is the disease frequently treated by the vedaralas in your district? By what name is it known, and what are the varieties described by native practitioners?
18. What prophylactic measures could you recommend to prevent outbreaks of the disease or to stamp it out or limit its extension when it has occurred?
19. Do you consider enforced or compulsory segregation and isolation of the sick are necessary to prevent the spread of the disease?

Nature of the disease.

20. Is Parangi, in your opinion, a distinct disease *sui generis*, or is it merely a variety or modified form of syphilitic, leprous, or some cachectic disease?
21. Have you any evidence to shew that the disease has been aggravated by improper treatment, especially by the abuse of mercury?
22. Is the course of the disease modified or altered in any way by the occurrence of other affections? Are the course of vaccinia, small-pox, or chicken-pox modified by the co-existence in the same individual of Parangi? If so, how? What influence has the disease on pregnancy and parturition?

V.—In investigating a Case with reference to its Origin or Affinities.

(1) Syphilis.

(*a*) *In the very young*, a family history of Syphilis; the general aspect is marasmic, with a shrivelled old man-like appearance, the skin is dirty, muddy-like, and it has lost its elasticity, and hangs in loose folds; it is dry, often exfoliating and erythematous about the buttocks, cry is harsh and cracked with characteristic snuffles, mucous tubercles about the anus and mouth, ulcerations of mucous surfaces, a high arched palate, inflammation of the thymus gland, various eruptions over the body, also about the feet and hands, subacute onychia; somewhat later, the condition of teeth is very peculiar, the two upper central incisors are atrophied, peg-like, and present towards their free edge a uniform or cordate character, the notch occupying the centre of this edge. Interstitial Keratitis is developed, and enlargement of the lower end of the humerus between the epiphysis and shaft.

(*b*) *In the adult.*

1. History of syphilitic inoculation, presence of cicatrices, indurations, scars, and stains about the penis and groin, ulcerated sore-throat, nocturnal pains, substernal tenderness.
2. Colour of eruptions is reddish—yellow-brown or dull-red becoming coppery.
3. Form circular, horse-shoe or gyrate with thick crusts, greenish or black, and firmly adherent or serpiginous.
4. Ulcers: surface is ashy-grey covered with a pultaceous substance.
5. Cicatrices are whitish and reticulated.
6. Fissures are common.
7. There is generally absence of pain and itching.
8. Polymorphism of eruptions or the existence of different kinds of eruptions on one and the same individual. Dermato-syphilis may be present in no less than five or six different forms of eruption.
9. If a female, probably a history of miscarriages.
10. The tertiary symptoms are characterized by—

(*a*) The formation of gummata, depending on a specific over-growth of tissue.
(*b*) Their great inveteracy and tendency to recur.
(*c*) Involvement of internal organs.
(*d*) Their want of symmetry.

(2) Leprosy is a specific disease characterised by the slow development of nodular growths in connection with the skin, mucous membranes, and nerves, and where the latter are principally involved by the supervention of anæsthesia, paralysis, and a tendency to ulcerative destruction and gangrene. There are two forms, the anæsthetic and tubercular; the specific phennomena are livid blotches appearing here and there on the skin remaining out from a few days to a few weeks, then disappearing, to be succeeded by similar outbreaks; they are tender, elevated discs or rings, irregular in shape and varying in size from half-an-inch to two or three inches in diameter; they are followed by brownish pigmentary stains or unnatural whiteness. In the tubercular form hard resistent nodular elevations develop in the cutis and appear as nodulated, thickening of the eye-brows,

adjacent parts of forehead and lobes of ears ; when the nodules ulcerate and afterwards heal, the cicatrices produced are deep and dense ; frequently there is a peculiar cough and hoarseness of the voice developed, which are very characteristic.

In the anæsthetic form there may be no tubercular formation, but the sensory and motor nerves become affected, followed by muscular paralysis and wasting, bullæ form, burst and heal, leaving depressed cicatrices behind. Gangrene occurs in the hands and feet, beginning either from within, outwards, or the reverse, and ending in the loss of fingers or toes or even of the hand or foot.

The morbid process consists in the infiltration of the affected tissues with innumerable small cells containing comparatively large nuclei.

(3) Lupus consists in a specific overgrowth of the cutis, of chronic progress, and resulting in the formation of indelible cicatrices or in more or less extensive destruction of tissue.

It commences with congestion followed by hypertrophy of a limited area, and the formation of solitary or grouped lenticular tubercles, a line or two in diameter ; they may become covered with adherent scales or with thick crusts, or the tubercles become pale, depressed, and contracted, and assume a cicatricial character, or extensive ulceration occurs with considerable destruction of parts; but there is very little complaint of suffering on the part of the patient.

The morbid process consists in the development of a kind of tissue composed of small cells imbedded in a fibrous material.

VI.—*Treatment recommended in Hospital.*

1. A warm bath on admission, the skin to be well washed with soap.
2. A tepid bath daily.
3. The ulcers to be dressed with carbolic acid ointment or oil (1 to 20).
4. The internal use of iodide of potassium with decoction of sarsaparilla, followed by a course of cod liver oil and iodide of iron.
5. Nutritious food.

The Government granted a sum of 500 rupees for the purpose of obtaining a series of illustrations of the several forms of disease included under the term Parangi.

I have been fortunate in obtaining the services of an able local artist in Mr. J. K. L. Vandort, who has furnished me with an atlas of faithful, life-sized pictures in water-colours, in illustration of the cases detailed by the Medical Officers who were good enough to take an interest in the investigation. Many of the illustrations were taken under my own directions from patients that I had personally inspected.

I am sorry to say I have not been favoured with many reports throwing light upon the subject ; however, I have pleasure in drawing attention to the careful report of the District of Kurunégala and the detail of cases furnished by Assistant Colonial Surgeon Mr. T. F. Garvin, M.B., who has taken much interest in the subject, and who is well-qualified to continue the special investigation of the disease, should it be considered desirable to do so.

The report of Mr. J. Attygalla, M.B., is also worthy of remark ; he is a Sinhalese medical officer well acquainted with the manners, habits, and customs of his countrymen.

The following questions were required to be answered in each case in filling in the register :—

1. Name, age, sex, race, occupation or condition.
2. Birthplace and residence.
3. Date of attack, duration of disease previous to admission, physical condition on admission.
4. Is it a first or second attack ?
5. Form of disease—
   (*a*) Primary.
   (*b*) Secondary.
   (*c*) Sequelæ (variety.)
6. Any other members of family affected ; if so, how many ? Name the order in which they were attacked.
7. How did the disease commence: any scratch or sore on body previous to its appearance ?
8. Do many people in village or district suffer from a similar disease ; if so, about how many ?
9. To what cause is the disease attributed ?
10. Ever suffered from any form of venereal ? Name the form.
11. Vaccinated or not ; did disease appear before or after vaccination ?
12. Ordinary food, in ounces, if possible.
13. Ordinary food of people.
14. Treatment previous to admission. Was mercury given or not ?
15. Description of case, following the instructions, and giving briefly the history, symptoms, diagnosis, prognosis, etiology, pathology, treatment, and result.

On examination of the registers, 241 cases were recorded, and the results arrived at will be found in the table given after the special report on the disease, and preceding the cases which have been drawn up in connection with the illustrations.

In 1879, I endeavoured to obtain statistics of the number of cases of disease existing in the several Provinces of the Island included under the popular name Parangi. I

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caused a paper to be circulated through the Government Agents and their Assistants, a[nd] the subjoined figures give the result obtained :—

Total number of cases in Province.			Males.	Females.	Race.		
					Sinhalese.	Tamils.	Moors.
Western Province ...	360	...	255	105	356	4	...
North-Western Province ...	711	...	423	288	670	18	23
Central Province ...	573	...	396	177	549	4	20
North-Central Province ...	294	...	167	127	209	29	56
Northern Province ...	489	...	279	210	28	442	19
Eastern Province ...	1,120	...	674	446	137	716	267
Southern Province ...	6,758	...	4,265	2,493	6,750	...	8
Total ...	10,305	...	6,459	3,846	8,699	1,213	393

I also annex the following table giving the number of cases treated in the severa[l] hospitals of the Island from the first year I find the disease mentioned in the Hospita[l] Returns—1873 to 1880, inclusive :—

	1873.		1874.		1875.		1876.		1877.		1878.		1879.	
	Treated.	Died.	Treated.	Died.	Treated	Died.	Treated.	Died.	Treated.	Died.	Treated.	Died.	Treated.	Died.
General Hospital, Colombo ...	—	—	—	—	—	—	—	—	—	—	—	—	2	—
Civil Hospital, Pánaduré ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Do. Kalutara ...	—	—	—	—	—	—	—	—	—	—	1	—	5	—
Do. Kégalla ...	—	—	—	—	—	—	5	—	4	—	6	—	11	—
Do. Ratnapura ...	—	—	—	—	—	—	—	—	—	—	3	—	2	—
Do. Negombo ...	—	—	—	—	—	—	—	—	—	—	86	—	24	—
Do. Kurunégala ...	—	—	—	—	—	—	—	—	108	—	95	—	173	—
Do. Puttalam ...	—	—	—	—	—	—	207	—	68	—	41	1	69	2
Do. Chilaw ..	—	—	—	—	—	—	95	—	51	—	6	—	27	—
Do. Galle ...	—	—	91	1	—	—	70	1	8	—	10	—	28	—
Do. Matara ...	—	—	—	—	—	—	—	—	87	1	138	1	106	—
Do. Hambantota ..	—	—	—	—	—	—	—	—	—	—	—	—	3	—
Do. Tangalla ...	—	—	—	—	—	—	—	—	26	—	40	—	31	—
Do. Trincomalee ...	4	—	—	—	—	—	10	—	—	—	7	—	68	1
Do. Batticaloa ...	—	—	—	—	—	—	30	—	—	—	—	—	—	—
Do. Mullaittivu ...	—	—	—	—	—	—	331	3	174	-	179	1	206	—
Do. Vavuniya-Vilánkulam ...	—	—	—	—	—	—	—	—	146	2	129	1	153	1
Do. Point Pedro ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Do. Kandy ...	—	—	21	1	—	—	—	—	—	—	—	—	9	—
Do. Gampola ...	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Do. Badulla ...	—	—	—	—	—	—	—	—	—	—	2	—	—	—
Do. Matale ..	—	—	—	—	—	—	—	—	—	—	—	—	4	—
Do. Nuwara Eliya ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Leper Asylum, Hendala ...	—	—	—	—	—	—	2	—	8	1	—	—	2	—
Immigrant Hospital, Dambulla ...	—	—	66	—	204	—	303	—	143	—	97	—	111	1
Do. Anurádhapura	—	—	52	—	92	9	41	—	137	3	144	1	33	—
Do. Mihintale	—	—	114	2	236	3	184	5	138	2	452	4	114	—
Do. Mannar ...	—	—	4	—	5	—	13	1	1	—	—	—	4	—
Do. Vankalai and Pesalai ...	—	—	—	—	—	—	1	—	—	—	—	—	—	—
Do. Puliadi-irakam	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Far more reliance should be placed, in estimating the amount of disease existing, upon the annexed extracts from the reports of the Government Agents and their Assistants, and some of the Colonial Surgeons, which have appeared in the Administration Reports since 1867; but in reading them, it should be borne in mind, as I have previously stated, that several diseases are included under the term.

Extract from a letter of the Government Agent of the Northern Province, Mr. W. C. Twynam, in reply to an application for statistics.

From your letter No. 14 of the 6th instant it appears that you require the information asked for by you for the purpose of drawing up a report regarding the prevalence of Parangi and Leprosy in the several Provinces of the Island, to be forwarded to the Right Hon. the Secretary of State for the Colonies.

I know from experience that it is impossible to get anything like reliable information regarding these diseases from the headmen. Many of them would not know the difference between Parangi and Leprosy; others would look on any other disease as Leprosy, and report accordingly; whilst others would take little or no trouble about the matter, and merely make a report. In any case, it would take some months for the headmen to go round and get the names of all persons suffering from Parangi and Leprosy.

Parangi disease prevails, as I have reported, to a fearful extent in the Province, especially in the Vanni District.

I first brought the matter under the notice of Government in 1864, in my Administration Report for that year, as Assistant Agent of Mannár. I referred to that report in my report to the Irrigation Commission in 1867, and Dr. Loos was, in 1868, ordered to visit the Vanni Districts, and enquire into the nature and causes of the Parangi disease, and the extent to which it prevailed.

I accompanied Dr. Loos in his circuit through the Mannár Vanni, and it is in reference to what fell under my observation then that I feel convinced that it would be impossible to obtain reliable information from the headmen in regard to the prevalence of Parangi and Leprosy, and that any report based on returns furnished by them would afford a very erroneous impression of the real condition of the people in connection with these diseases.

Dr. Loos had made inspection of some villages before I joined him, and I was astonished to find that in three large villages in which I knew that almost all the inhabitants were affected with Parangi, he had only received returns of three and four in each village as suffering from the disease. On the villagers being all turned out for inspection, however, he found that from one-half to three-fourths of them were suffering from the disease or its effects.

The hospitals at Vavuṇiya-Vilāṅkuḷam and Mullaittivu were created by Government especially for the treatment of the Parangi disease on the recommendation of Dr. Loos. Dr. Danforth was placed in charge of the Vavuṇiya-Vilāṅkuḷam hospital, and made two or three reports, I believe, to Government regarding the Parangi disease.

I still adhere to what I have before reported, namely, that there is scarcely a man, woman, or child in the Vanni Districts of the Province, who has not had the disease, who is not suffering from it now, or is about to have it. I have not, to the best of my recollection, seen one inhabitant of the Vanni who has been entirely free of it.

It prevails to some extent in the maritime pattus of the Mannar and Mullativu Districts, in the Pachchilaippaḷi, Tenmaraḍchi and Vadamaraḍchi divisions of the Jaffna District, and there are traces of it in the other divisions of the Jaffna District; and I believe that if anything like an accurate return could be obtained of the number suffering from the disease or from its effects, it would be found that fully 40,000 of the inhabitants of the Northern Province were, in one way or another, affected by it.

If, after what I have stated, you still wish to obtain returns from the headmen in the printed forms sent by you, I beg you will furnish me with 500 forms in Tamil, this being a Tamil district.

I shall be most happy to afford or obtain for you any information in my power regarding these diseases, or to render any assistance to any of your officers who may be deputed by you to enquire into and report on them.

In 1867, Mr. W. C. Macready, Assistant Government Agent at Puttalam, says on the subject of Parangi:—*

The population is thinly scattered over the country, and the people are indigent and, as a rule, unhealthy, suffering not a little from ague and fever and other ailments incidental to their poor mode of living. Among these, Parangi, commonly called Spanish-pox, which is so rife in the Vanni, is here often fatally prevalent, checking increase of population and propagating disease and misery. It is seldom that a family will be found in this pattu where the number of the children exceed two or three. Want of wholesome food and sufficient quantity of it, with their almost universal dependence on kurakkan for subsistence (a diet unhealthy and debilitating when long persisted in), the scarcity of wells to supply fresh and untainted water in the annual seasons of drought, the total absence of ventilation in their dwellings, and their dirty clothing and dirtier habits, are some of the causes which unite to render them unusually susceptible of disease. Every Demala-pattu Kandyan is especially liable to contagion from his personal uncleanliness. His under-clothing is hardly ever washed; the same old dirty cloth does duty under all circumstances, even under a newly-washed outer garment. He seldom, if ever, has two changes of raiment at one time. The pillow he places under his head has no cover, and is never washed. I have seen the women scraping the dirt off it with a knife. The mat he lies upon is brown with dirt. It is hardly strange that contagious diseases should be bred and fostered among so much filth.

Again, their partiality to kurakkan as a food in preference to rice is remarkable. I believe the principal reasons for this are the absence of any tax upon the cultivation, the ease with which

* Administration Reports, 1867.

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the cakes are prepared, and the length of time they can be preserved. These cakes are much more portable than boiled rice, and easier carried to the chenas where the men and boys spend much of their days. They are used in the form of a biscuit, the flour being kneaded up with water, with the addition of a little salt and green chilly, and baked for five or six minutes.

Parangi is, I believe, under certain conditions, contagious, but not, as far as I can discover, an infectious disease. Its effects thoroughly resemble those of Syphilis, but it appears to be generally believed that its origin is not venereal, though venereal sores when neglected are said to degenerate into Parangi. I have seen small children from three to four years of age affected by it. The native remedies in this district are a yam called "Alabahet," and a free use of mercury, which usually effects a cure at the risk of ruining the patient's constitution. I have not seen any medical papers upon the subject, which, I think, is one well worthy the attention of the Medical Department.

The Government Agent of the Southern Province, in 1867, (Mr. W. Morris) writes:—*

There is perhaps no part of the Island in which rice forms so little the staple of food for the inhabitants as the Galle District: its place is supplied by yams, sweet potatoes, jack, and bread-fruit, with fish. Yet, as the rule, the people are strong and able-bodied, though, unfortunately, a large proportion of them are more or less affected with that loathsome disease known as Spanish-pox, the spread of which has of late been attributable to inoculation by the Government vaccinators.

It is only from last year we have any reliable statistics of the death-rates; and that of the Galle District, as appearing in the annexed memorandum, is remarkably small although it labors under the disadvantage of notoriously bad water in the most populous parts of the district, to which has been attributed the disease known as the "Galle leg" or Elephantiasis.

Until last year I had no conception of the mass of disease existing in this district. Whilst travelling, one not unfrequently meets a wretched-looking object sitting by the wayside begging, and in the towns they seem to congregate. During last year, consequent on the large number of defaulters under the Road Ordinance, from whom nothing could be recovered, I fixed days at some of the principal villages to exempt such persons as were unfit for labour. The result was, that I was beset with men of all ages afflicted with horrible sores—some lepers, but the majority, more or less affected with what is commonly known as the Spanish-pox. The unaffected seem not to fear contagion; like scrofula, I believe there is no doubt but that the disease is hereditary, and where such numbers are affected, it must, from natural intercourse, be on the increase, and is most probably conveyed to healthy subjects through the medium of vaccination. I recollect in the Seven-kóralés, the great objection to vaccination was the bad sores which there frequently followed the operation, though the vaccinators attributed them to the patients tampering with the pustules, to prevent the proper effect of vaccination developing itself.

The question has recently been mastered in England, whether vaccination has not brought greater evil in its train than the one for which it was supposed to be a specific, by the propagation of consumption, scrofula, and syphilitic affections. If so in England, the case must be infinitely worse in Ceylon, where the vaccinators are for the most part mere machines, with just sufficient knowledge to be able to report that the pustule produced has all the appearance of genuine cow-pox and without a care or thought of the constitution of the person from whose arm the lymph is taken, or to whom it is transferred; the number of persons operated on being the great test of their fitness for the office of vaccinator.

The Assistant Government Agent of the Hambantota District, in 1867, (Mr. Thomas Steele) says:—*

While treating on the subject of health, it may be of interest to record here a circumstance connected with vaccination that has, I am told, been observed in the district. It appears that a constitutional cutaneous disorder, which is transmissible hereditarily, known as Spanish-pox, and called by the Sinhalese the *Feringhee disease*, is common among the natives, and it is found that in vaccinating healthy subjects, lymph, if taken from persons affected with the above disorder, has the unhappy effect of disseminating it. It is said that many families, at one time perfectly free from the disorder in question, have, through the extension of vaccination, suffered in this way; and if this be true, the matter demands full and searching inquiry at the hands of the medical authorities. Should the statement be founded on fact, it will be necessary to adopt the most stringent precautions in using only fresh and pure lymph. It is worth while to inquire whether anything similar has been observed by the profession in Europe.

The Assistant Government Agent of the Mannár District, in 1868, (Mr. E. N. Atherton) says:—†

The increase of that malignant disease, Spanish-pox, is a source of regret to those who have watched its progress for years past. The extreme poverty of the people and their uncleanly habits have no doubt helped to spread it, but I trust that active steps will be taken by the Government to render medical aid to the infected villages, with the view of eradicating this scourge.

The Assistant Government Agent of the Mannár District, in 1870, (Mr. P. A. Templer) says:—‡

The other cause of depression to which I have alluded is that notorious, but little understood disease, which is generally named "Paranki Nasal" or Spanish-pox. There is scarcely an individual, and certainly not a family, in the Vanni-pattus, untainted by this filthy disorder, and the only remedy which is ever applied by the native physicians is almost as hurtful as the disease itself. I mean large doses of mercury. This disease is not only antagonistic to the welfare of the people

* Administration Reports, 1867. † Administration Reports, 1868.
‡ Administration Reports, 1870.

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in its direct influence upon their physical powers, but is the main obstacle to a removal of that other evil to which I have referred, viz., the want of a population to till the soil. I do not consider that the present state of things is at all beyond hope of amelioration. The establishment of hospitals and the improvement of the water-supply will go far towards restoring the district to the state of prosperity which it seems to have enjoyed under Dutch rule. There are, however, some limitations within which only one is justified in expecting any benefit to accrue from either hospitals or irrigation. With regard to the former, nothing will be so successful as success. I mean that the hospitals will entail an utter waste of the money expended in building them, if an efficient medical man is not found to take charge of them. When first the hospital is open, no doubt patients will be found ready and willing to submit themselves to treatment, but if the treatment is not successful, the people will lose confidence, and the hospital will have to be abandoned. I therefore earnestly hope that a physician with experience and some professional attainments will be placed in charge of the hospital now in course of erection at Vavuniya-Vilánkulam when it is first opened. It will not be necessary to make his appointment a permanent one; he might remain long enough to ensure a successful inauguration of the scheme, and when he has collected round him a staff of men from among the native medical practitioners, who will have studied the disease and its treatment under the eye of one whose success has been beyond question, he can leave them to work by themselves, subject only to an occasional visit of inspection. I have no doubt that such a master and such pupils might easily be found, if a fit inducement to go and live in Vavuniya-Vilánkulam were offered, but I have equally little doubt that, unless such an arrangement as I have hinted at is carried out, the scheme will be an absolute failure.

In contemplating any proposal for increasing the water-supply of this district, the peculiar circumstances of the people and their total want of capital must be borne in mind. The Sinhalese have been—and with great reason—called apathetic. But the most torpid of them presents a picture of restless energy, when compared with a Vanni Tamil, whom it is almost impossible to convince that his ancestors had some few wants left unsatisfied, which, if he will stir himself a little, can now be provided for. What was enough for his father is enough for him, and no spontaneous act of his will advance him one inch upon the pathway of cultivation. Much of this can of course be accounted for by the almost universal incidence of that disease to which I have elsewhere alluded.

It is hardly to be expected that a man borne down by a loathsome syphilitic disorder will do much more than consent to exist till disease kills him, and the man of the Vanni does just this, and no more. Admitting, then, that these people will not help themselves, the question is, are they to be left in their present state till disease exterminates them and want of population makes a wilderness of the district? or, are improvements to be forced upon them, in as palatable a form as can be devised? Surely, the latter.

The Government Agent, Northern Province, in 1871, (Mr. W. C Twynam) says:—*

"Whatever may be said of the peninsula of Jaffna, the same cannot be said of the mainland districts. The Mannár district is certainly not prosperous. On the contrary, its condition is one demanding serious attention with reference to the introduction of some measure to check, if possible, the decay so rapidly going on. The repeated outbreaks of cholera, introduced by immigrant coolies, have told fearfully on the population, and the existence of a loathsome disease which produces much misery and suffering, must tend to check any natural increase of the population to make up the ravages caused by epidemics, or even by ordinary causes.

The Anurádhapura and Vanni districts have also suffered from the effects of epidemics, and in both the same loathsome disease prevails. They cannot therefore be said to be prosperous. They are certainly not progressing, and, if not actually receding like Mannár, are merely holding their ground.

What I have before stated also, as to the prevalence of that loathsome Vanni disease and its effects in checking the increase of population, is, curiously enough, borne out by the returns of the Census. I once before represented, when alluding to this disease, that it prevailed in the Tenmaradchi and Pachchilaippali divisions of the Jaffna peninsula. Now, it is in these very divisions of the peninsula that there is either a decrease shewn in the population or a very slight increase. It is in the eastern villages of the Tenmaradchi division and in the Pachchilaippali that the disease begins to make itself apparent to a person going towards the Karaichchi and Vanni from Jaffna, and I have seen some dreadful cases of it in the Vadamarádchi when holding exemption meetings under the Thoroughfare Ordinance.

The following is the extract from the report I refer to; viz., the annual report of 1864:—

"A matter to which I think it my duty to invite serious attention is the gradual depopulation of the district, especially of the Vanni pattus. The people themselves attribute this to the periodical outbreaks of sickness introduced by the immigrant coolies.

"There is no doubt that the immigration from the coast has been, on the whole, and was more especially at the commencement, a most serious evil to the district, but there exists amongst the natives themselves a terrible disease, hitherto supposed to be of a syphilitic nature, from which *no man, woman or child in the Vanni seems to be entirely free*, and which would, I believe, *of itself*, have led, though more slowly, to the same result.

"The disease is by no means confined to this district. I have, however, never seen such dreadful instances of it as have come under my observation during the last two circuits in the Vanni, nor was I aware till lately how tainted the whole population of the Vanni are with it.

"I have seen traces of it in the Hambantota district. It prevails to a great extent in the Tenmarádchi and Pachchilaippali divisions of Jaffna, and is also as bad in the Mullaittívu District as in this.

"Mr. Northmore reported its existence, and the ravages caused by it in the Anurádhapura District, when Assistant Agent there, and called the special attention of Government to the

*Administration Reports, 1871.

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subject; and I have been lately informed that a medical gentleman residing in Batticaloa, and who has been many years in the Island, made a representation to the Government on the subject, and recommended enquiry being made into the cause and nature of the disease, in order to the discovery, if possible, of some remedy for it. In the interest, therefore, of a very great portion of the Island, it appears to me that the matter calls for the most serious consideration of Government.

"As regards the Jaffna district, in general, there has no doubt been an increase of population, but I believe that very exaggerated notions have been formed by people visiting the peninsula, of the population of the peninsula from what they have seen in the neighbourhood of the town and some of the parts and along the main lines of roads. There are, however, large tracts of country which are uninhabited, being mere salt marshes, and in the Pachchilaippali, in which are the cocoanut estates, the population is very scattered."

The Acting Assistant Government Agent, Anurádhapura, for 1871, (Mr. T. W. Rhys David) says :—*

The health of the people has been, on the whole, very good, the principal disease being fever—a disease much more fatal here (and possibly also in the Vanni) than the Spanish-pox or congenital venereal, usually called "Parangi." The latter seems to attack nearly every child here, much as measles or chicken-pox do at home, and with results not much more injurious. If it attacks adults, however, the disease is not so easily shaken off, and the great immorality of the people must lead to a high average of primary syphilitic disease.

The Assistant Government Agent of the Mannár District in 1871, (Mr. P. A. Templer) says :—*

The district has been free from epidemics for so many consecutive years now, that perhaps the population is really on the increase (though of course only slightly); but this does not alter my opinion, that the district will never be prosperous until the "Paranki Nasal" has been eradicated. Everything has been done by Government towards a fair experiment being made; and it only remains for the revenue officer in charge of the District and medical officers in charge of the hospitals, to give the people such encouragement as shall make the failure of the experiment (if it does fail) a convincing one. If, however, the scheme is hampered by considerations as to whether patients are in a position and willing to guarantee the payment of whatever is expended by Government on their cure, I am quite certain that the people will turn away from the hospital in disgust, and the scheme will fall through. Until the doctors have had time to do their best, and until a sufficient number of patients have been persuaded to submit themselves to treatment, any impediment to free entrance into hospital will only make certain the failure of an experiment which has already cost the Government a considerable sum. If, on the other hand, the efforts of the medical men are successful after a time, I am sure that the people will flock to the hospital, and those who can will willingly pay for being cured. At present they don't believe that they will be cured, and will only go to hospital under pressure; so that, to ask such people what security they have to offer that the expenses incurred on their account will be repaid, is to shut the hospital door in the patient's face.

The Assistant Government Agent of the Mullaittivu District in 1871 (Mr. G. H. Withers) says :—*

"The great and too-well known curse of the country is the disease which enfeebles generation after generation, but this it is hoped will be softened or subdued in process of time by medical treatment; I cannot think this disease is fostered or exacerbated by poor and bad living so much as is generally supposed.

"In ordinary years, the people are fairly off for food. Besides paddy, varied with kurakkan and vegetables, occasionally there is a constant supply of game. In one of three households there is a gun, and the owner's savings or loans are spent in powder and lead. The meat is eaten fresh, or salted and preserved. Fish, and not flesh, is enjoyed by the inhabitants of the maritime pattus. Bad water in parts of the district has doubtless bad effects on the general health. But what I cannot help thinking goes far more to debilitate the system than the quality or quantity of the food consumed, is the exposure during the season of cultivation to the great vicissitudes of temperature in the twenty-four hours, which at night in the thickly-wooded interior is rendered intensely cold to the senses by the heavy fall of dew. No less an evil than the exposure is its ally, mercury, the favourite remedy for the Vanni disease, which is taken in enormous doses."

The Acting Government Agent of the North-Western Province, for 1871, (Mr. W. D. Wright) says :—*

In a country which, at some fifty miles from the sea, does not attain a greater altitude than 200 feet, the climate is necessarily warm, and as there is but little intervening hill-country to check the winds which sweep over it in either monsoon, it appears to me that the endemic fever which exists at all seasons of the year, but especially during and after the rains of the north-east monsoon, may be attributed to miasmatic vapours generated in the jungle wastes of the Northern and Eastern Provinces and wafted hither.

The effect of this malignant fever are but too apparent in the emaciated and also dropsical forms of the village population, and it is to them as well as to that fearful scourge—Parangi—that may be described the desolate wretchedness of a part of the Province which forms a portion of the Vanni. Neither disease can be said to be actually fatal to life except in such fever cases where the brain becomes affected, but they both prostrate the sufferers and have been the main cause of

* Administration Reports, 1871.

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the rack and ruin around us. No doubt too, unwholesome diet, bad water, and contagion in the case of Parangi combine towards the prejudicial effects of both diseases; and any efforts of the Government for the amelioration of the people and revivification of impoverished and sparsely-populated villages should be undertaken in a very liberal spirit. But such efforts should not be overlaid with pecuniary requirements of repayment, as in the Irrigation Ordinance, which (excellent as a scheme, provided the water-rate of 2*s*. an acre be not exceeded in districts to which it is suitable) seems inexpedient when applied to places where every endeavour should be made to retain the small resident population and induce more to abide.

When reading, a few years ago, Dr. Loos's report about Parangi, I do not remember having seen any notice of a means of preventing the sad consequences of the disease by a species of inoculation, and will therefore describe the practice in the remote parts of the Vanni District. It is to make children, when they are about one year old, partake of rice off a leaf or plate on which a person suffering from the disease has eaten. In a short time, pustules, like itch, appear on the child's body, and then medicines containing minute quantities of mercury are administered, which cause the pustules to dry up, and in seven days the scales to fall off, leaving deep dark marks which in course of time disappear. It is said that this is an almost certain prophylactic, and that, though the disease may attack one who has been so guarded, the effects are never serious. I believe that Dr. Loos animadverted upon the use of mercury, and no doubt the vedarálas, from ignorance of its results, are not careful enough in prescribing it, but the cure for this seems to me to be an increase of the means whereby people may obtain efficient medical aid. As the case stands, the best known remedy for the disease is mercury in combination with China root, and as it is said that unless the disease be cured within three years, no remedy is efficacious, what surprise can be felt at the poor unsophisticated sufferers adopting a course of known potency while they are ignorant that it will probably lead to a life of almost equal wretchedness as that from which they would fain escape?

The Assistant Government Agent (Mr. E. N. Atherton) on the Sabaragamuwa District for 1872 says:—

Traces of the Parangi have appeared at Walalgoda, Embilipitiya, and Tunkeme. I have reason to believe that it is chiefly owing to the use of diseased grains. The poisonous nature of the spurred rye or maize is well known in Europe, and has given rise to epidemic diseases at various times. Those who eat it were seized with gangrene in some part or another, some losing their fingers, others their hands or nose.

The symptoms in both cases closely resemble each other. First preceded with low fever, inflammation and excessive pain, then the parts suppurate and fall of. It attacks persons of all ages and both sexes, some in the upper and others in the lower extremities. I have even seen sucking babes affected with this fearful scourge.

Considering the extent to which Spanish-pox exists in the northern portion of the Island, I would suggest the propriety of engaging the services of an experienced medical officer, to trace out the cause and source of this disease, which is depopulating whole villages.

The Assistant Government Agent (Mr. H. Hay Cameron) on the Nuwarakaláwiya District for 1872 says:—

Into this hermetically-sealed abode of men no faintest breath of air can creep. The rain drips from the mouldy thatch to stagnate in the gutter beneath; the plantain leaf rots when it falls before the door, and the borders of the little tank in which the people wash, and from which they take their water for cooking and for drinking, form the public latrine of the village. Is it a subject of amazement then, that Parangi, fever, and rheumatism rage unchecked throughout the country? It is here that Nuwarakaláwiya must own and submit to the ill-sounding titles which she bears.

The Assistant Government Agent (Mr. Reginald C. Pole) on the Puttalam District for 1872 says:—

The health of the inhabitants of the district was generally good. No disease, either epidemic or endemic, prevailed, unless that type of disease peculiar to the Wanni and commonly known as Parangi-rógé may be said to be endemic in the Demala-pattu. During the second quarter of the year a low kind of fever was very prevalent in the southern pattus. In my season report for that quarter I find it recorded.

The Principal Civil Medical Officer and Inspector-General of Hospitals for 1872 (Dr. W. P. Charsley) says:—

Extraordinary efforts were made during this year, at the special request of His Excellency the Governor, to afford medical aid to those suffering from what is termed Parangi disease. Without entering into a discussion here as to the true nature of this complaint, it is well known to be highly prevalent in the Vanni and large portions of the low parts of the interior of the Island, and so fatal are its effects among the inhabitants of these regions that the natural increase of population is not only checked, but in some parts it is said to decimate the people.

A highly intelligent and efficient medical officer was selected for this purpose, and he was stationed at Vavuniya-Vilánkulam, where there is a small but convenient immigrant hospital. Assistant Colonial Surgeon Dr. Danforth took charge of this station from 4th June, and has since then continued with unabated energy to diffuse the benefits of European medical treatment among the inhabitants of the Vanni.

I have much pleasure in inviting attention to Dr. Danforth's interesting and able report on the disease, as it met his observation, and on the result of his treatment. From 4th June to the end of the year, 431 cases came forward for treatment, of which 31 were treated in hospital. Dr. Danforth very properly does not aspire to have absolutely cured any, but fifty were discharged much improved, 191 improved in a less degree, but the result of 162 cases was unknown from

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their not returning to the dispensary. The majority of the patients were Tamils—368; only 88 were Sinhalese and 25 Moors. No doubt that some benefit has been derived by these laudable efforts to combat the disease in its very stronghold, but, when it is considered how widely it is diffused among the inhabitants of the low-country and the great number of years through which it has been gradually gaining upon the people, I do not anticipate that efforts of this kind will, or can, be attended with permanent good results. Dr. Danforth has indicated in his report the true remedies for this dreadful malady, which are to be found in well-assorted marriages, the means of procuring better food and better clothing, the opening up of roads and market places among the people, increased cultivation of soil which would tend to disperse the malaria, under the influences of which they pass their lives, improved dwellings and good drinking water. Medical treatment is a mere adjunct, and may give relief to those suffering, but it will not eradicate the disease. The only true remedy is a complete reversal of all those conditions which have led to its existence, and can be effected only by slow degrees.

Dr. C. A. Kriekenbeek, Colonial Surgeon of Jaffna, in 1872 says :—

At all three of these hospitals* the disease called "Parangi," prevalent in most parts of Ceylon, but particularly in the Vanni District, is extensively treated and with evident marked success. The medical officers of these three stations vie with each other in the skill and care with which the miserable objects, the sufferers from this loathsome disease, are treated by them, and the establishment of these hospitals is doubtless the greatest boon that could be conferred by an enlightened and liberal Government upon the inhabitants of these districts.

Dr. P. D. Anthonisz, Colonial Surgeon, Galle, in 1873, says:—†

The next disease with which a large portion of the people are affected in Mátara, Taŋgalla and Hambantoṭa Districts, is an affection which destroys or disorganizes nearly every structure of the body, from the skin inwards to the bone. It has in all its appearances and ravages the sequelæ of Syphilis, transmitted from parent to offspring, and the disease is so communicable or transferable that few are seen in Taŋgalla and Hambantoṭa districts of pure Sinhalese, who have escaped it. Some of those who have recovered are literally marked with scars all over the body, the result of destructive and diffused ulceration. The disease is commonly known as "Parangi." From observation, and conversation with adults who have had it, and quite recovered from it, I find that they invariably allow it to run its course, which in a good constitution with tolerably good food and alterative remedies is likely to effect a cure; but those who are not blessed with a good constitution, of which the majority are, succumb to the effects of it, and drag out a miserable existence after having by a painful process lost the use of either a portion of the upper or lower extremities, the face disfigured by the destruction of the nose, lips, &c., and large callous ulcers left open by loss of great portions of the integument. Objects of this nature are not uncommon in Mátara, and when to constitutions of this kind, an impoverished diet is added, the effect is more easily conceived than described. The disease deserves the notice of Government with the view of adopting such measures as will tend to lessen human misery, to prevent the mutilation of bodies, to render men capable of labour, and thereby not be a burden to the community.

Dr. C. A. Kriekenbeek, Colonial Surgeon of the Northern Province, for the year 1875 says :—

Parangi Disease.—Dr. Danforth gives the following table of cases treated :—

	Indoor.	Out-Door.	Total.
Remained on 31st December, 1874	17	—	17
Since admitted	255	207	462
Total ...	272	207	479
Discharged much improved	263	25	288
Discharged improved	2	50	52
Result unknown	—	132	132
Died ...	1	—	1
Remaining on 31st December, 1875	6	—	6

It will be seen from these statistics that the benefits of the European system in treatment of this loathsome disease are widely appreciated and largely availed of. The following statement of Dr. Danforth is not, however, quite reassuring : "Several have returned relapsed, but such cases have been frequent among the poorest classes."

I do not know if I am to accept this statement as accounting for the large number treated. But, if treatment in hospital has the effect merely of affording temporary relief to the sufferers with the prospect sure and certain of the disease breaking out again on their return to their old habits of life, the conclusion is irresistible, either that they have left hospital too soon and before radical cure could be effected, or that a change in their habits and modes of life must take place before any appreciable degree of success can be realized in stamping the disease out. This is a change which only the lapse of time can bring about, and it is satisfactory to notice the improvements in the condition of the inhabitants, which are slowly, but surely, taking place under the rule of the present Governor of Ceylon.

Mr. W. C. Ondaatjie, Colonial Surgeon, Western and North-Western Provinces, for the year 1875 says :—

I should not omit to mention a striking feature in connection with the patients treated in the hospitals of Negombo, Chilaw, Puttaḷam, and Kurunegala, namely, that the majority are sufferers

* Anurádhapura, Mullaittívu and Vavuṇiya-Viláŋkuḷam.

† Letter addressed to the Principal Civil Medical Officer and Inspector-General of Hospitals.

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from Parangi disease, who, it would appear, are attracted to our hospitals from the different villages. I have no doubt these hospitals tend largely to the alleviation of the sufferings of people afflicted with this loathsome disease, which is one of the chief causes of depopulation. The Government has therefore conferred a great benefit on the people by the erection of Parangi wards.

It is satisfactory to observe the steady increase in the number of patients availing themselves of gratuitous medical aid at the various dispensaries attached to the Government hospitals.

In 1877, I reported as follows :—

I have paid much attention to the subject of the disease known as "Parangi" to the natives whenever I had an opportunity of inspecting cases in those districts where it prevails.

The disease is supposed to be endemic in and peculiar to Ceylon, and the name has been, I believe, applied by the vedarálas or native quacks of the Island since the time of the Portuguese. The word is a corruption of "ferengi" and simply means foreign—implying, I presume, that the disease is due to importation by strangers coming to the Island, and communicating it to the fixed inhabitants.

I have no doubt that a large number of different forms of disease, specifically distinct in their nature, have been included under the term, and that in many districts every form of ulceration, simple or specific, is included, and that many common skin diseases are likewise put down under the name "Parangi."

I have myself, even in the civil hospitals, recognised the following diseases included under that name : Lupus and lupoid ulcerations, rodent ulcer, syphilitic ulcerations, cases of hereditary Syphilis, and scrofulous ulcerations. I am far from wishing it to be understood that I consider *all* cases of the peculiar disease which has received the name can be included under the headings, but I believe there is no disease in this Island peculiar to it or that cannot be included under one of the names known to medical science.

My own opinion, formed after a full consideration of the question and an acquaintance with all that has been written on the subject, inclines me to the view that the disease hitherto considered peculiar to, and by some even thought confined to Ceylon, is nothing more than Frambœsia or the Yaws of the West Indies, or a disease very nearly allied to it.

The literature of Parangi is by no means extensive the name is not mentioned in the early medical works of the Sinhalese. Dr. Marshall, in his Medical Topography of Ceylon, mentions it, and describes a variety of forms which were known to the vedarálas. Dr. Loos, when Colonial Surgeon of the Northern Province, wrote an able paper on "The Depopulation of the Vanni," which he attributes in part to this disease; and the late Dr. Danforth also contributed a paper on Parangi, which he termed the "Vanni Plague." The papers of Drs. Loos and Danforth were published by order of the Governor and presented to the Legislative Council.

Dr. Gavin Milroy contributed a couple of papers bearing on this subject to the *Medical Times* and *Gazette*, and he also wrote through the Colonial Office a reply to the paper of Dr. Loos, in which he points out the apparent similarity between Parangi and Yaws.

To those interested in this subject, I beg to offer the exhaustive report of Dr. Gavin Milroy on Leprosy and Yaws in the West Indies.

The head-quarters of the disease will be found at Mullaittívu, Vavuniya-Vilánkulam, Kurunégala, Puttalam, Chilaw, and Negombo. I have also seen characteristic cases in the hospital at Galle with the peculiar crusts very well marked. I have not been able to meet with the very early cases, but in those patients that I examined the distinguishing characteristic was the elevated rupia-like crusts with condylomata in the angles of the mouth and around the anus in cases where there was not the slightest evidence of Syphilis.

When the crusts fall off and after the ulcers heal, the dark stains on the skin are invariably found, but in the few cases I have seen there was not, as far as I could discover, any raspberry-like fungus beneath. Perhaps I saw the cases at too late a stage.

It will be instructive to ascertain if the peculiar scars, contraction of joints, and acquired deformities so frequently seen in our hospitals, are the after-effects of Yaws.

Many of the symptoms of Parangi (Yaws ?) are common with other diseases—Syphilis, Scrofula, Elephantiasis, and Leprosy—and hence arose the confusion in classification and in the views held as to its nature ; some saying it was syphilitic, others that it was a form of Leprosy, and a third that it was a combination of the two.

I have interested several of the officers of the Department in this subject, and I hope after some further enquiries to return to it again.

In the meantime, I would suggest that a small sum of money be voted (say 500 rupees) for the purpose of procuring drawings of different phases of the disease to illustrate a report which I am preparing for the information of Government, and for transmission home.

Dr. P. D. Anthonisz, Colonial Surgeon, Southern Province, for the year 1877 says :—

The disease known under this head is one that disables, disfigures, and impoverishes a large portion of the inhabitants of Mátara, Tangalla, Hambantota, and some portions of the Galle District. It is a malady that deserves the attention of the authorities of the country, and no measures which have the semblance of doing good will eradicate it or benefit the population. The disease, by its name, shews that it has been introduced into the country by European conquerors, and it was known for a long time as the Spanish-pox, just as in England the specific disease was known by the name of French-pox. This disease, as well as many of the eruptions and ulcers in different parts of India, has so close a connection with the eruptions of specific diseases that the greatest authority on diseases of the skin, Professor Hebra of Vienna, seems to think that they all must have a specific origin. This malady is looked upon by the natives of the country as a highly contagious one, and as far as my knowledge goes, I have seen the children of healthy European parents affected with it by mixing and playing with native children in villages where the disease existed. The permanent cures that are effected among the natives who suffer from the disease

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are generally of those who come into town from distant villages and enter the hospital until they are so far relieved as to enable them to beg their food from door to door and to sleep in the open verandahs of houses. Boys and lads who arrive from distant villages looking disfigured and covered with ulcers and eruptions, in the course of two or three years have so far recovered that no trace of the disease is visible. Even the grown-up who have come to town with large ulcers and contraction of joints make such good recoveries after a time, as to be able to go out and employ themselves as labourers and porters.

The Assistant Government Agent (Mr. P. A. Templer) on the Puttalam District for the year 1878 says :—

The subject of the health of the people cannot, however, be dismissed without a reference being made to that loathsome and cruel scourge, Parangi. In my Administration Report for 1877 I did not touch on this subject, as I felt that I did not know enough of the district to be able to discuss it fairly, but I have now been two and a-half years in charge of the Puttalam District, and have been more than once through the whole of it, especially the Demala-hatpattu where the disease is most prevalent. A return asked for by the Inspector-General of Hospitals of all cases in every division of the district is now in course of preparation by the headmen, and until it comes in I will not enter upon the statistical aspect of the question. But no one who has gone through the villages in the interior will deny that the disease has assumed proportions which call for thoughtful and vigorous action on the part of those who are responsible for the well-being of the people. It is in the opinion of some medical men, I believe, that the disease is quite curable. Whether it is so in adults upon whom it has taken a firm hold, and whose constitution has been thoroughly weakened, may be open to doubt, but surely among children, who are as much its victims as are adults, an early and patient application of approved remedies would have a beneficial effect. I have on several occasions had children brought in from the villages to the hospital, but it is impossible to persuade them to remain among strangers and far from their homes. It is the same with adult cases, and if anything is to be done in the way of medical treatment the hospitals must be brought nearer to the homes of the people. In the southern part of the district, where there are many cases of Parangi, some of which come from Kurunégala side of the boundary, Mr. Soysa's hospital at Maravila may be near enough, but in the Demala-hatpattu it is out of the question to expect the people to avail themselves of the Puttalam hospital, twenty or thirty miles from their villages.

I think that an effort should be made to induce the people of each hatpattu in the Province to construct a substantial but temporary hospital for themselves, the timber being given to them free of royalty ; and when this has been done, the Government should provide the medical officer. An assistant might be placed in charge of each hospital, all the hospitals in the Province being then placed under the supervision of one experienced medical officer, who would visit each in turn.

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CONSIDERABLE confusion exists in the use of the term "Parangi;" several distinct diseases are evidently included in the descriptions given by the vedarálas, or native quacks of the Island, and by others who have written on the subject.

2. The term is a corruption of Farangi; the Sinhalese language having no "f," "p" is used instead. The Portuguese, who were the first foreigners who settled in the Island, were known and are still spoken of as Feringees. The Parangi disease simply means the disease of foreigners or strangers, and indicates the importation of certainly one disease, if not more, about the time the Portuguese took possession of Ceylon.

3. In Ribeyro's history* the disease is mentioned thus:—"The Neapolitan disease which the natives call Parangilede or Portuguese sickness, since the Portuguese first introduced it into the country, is not easily cured."

4. There is little doubt the word was restricted to Syphilis, which was first introduced into Asia in the sixteenth century, soon after its epidemic-like outbreak in Italy when the army of Charles VIII. was besieging Naples.

5. Previous to the sixteenth century Syphilis was, I believe, unknown in India. The old Hindu writers described various maladies of the genital organs; but they were unacquainted with venereal disease, and there is no name for it in the Sanskrit language. In modern Sanskrit works it is called "Faringa Róga" or Portuguese disease.†

6. The Sinhalese never possessed original works on medicine,‡ all their knowledge being derived from Sanskrit works written in India in ancient times. The earliest mention of Parangi occurs in the Yóga-Ratnákaré, a book containing the whole native system of medicine, composed in verse in the 12th year of the reign of Bhuwaneka Báhu the 7th, who reigned at Kótte about the year 1548 A.D., and about 43 years after the landing of the Portuguese in Ceylon. The mention of Parangi occurs after diseases of the skin, of which descriptions are given, but only prescriptions for what the author calls Parangi sores. The chief ingredient is mercury, and it is significant that China-root, which is so largely used at the present day for this disease, is not alluded to. The use of the drug was not known at the time the book in question was written, but was subsequently introduced by the Portuguese, to whom its utility in Syphilis is said to have been made known by Chinese traders at Goa.

7. Marshall, in his Medical Topography of Ceylon,§ says: "Parangi-ledé seems to have been originally intended to denominate a new disease, and, from the similarity of the sound and other collateral circumstances, it may perhaps be inferred that the term meant Portuguese. There is, however, no tradition among the Kandyans respecting the importation of a disease; and the priests assert that Parangi-ledé is mentioned in the books which were written during the last incarnation of Buddha." "The assertions of the Kandyans," he adds, "in regard to the antiquity of their medical compositions, do not merit our confidence."

8. With reference to the remark that he was informed by native vedarálas that the disease called Parangi-ledé was mentioned even in their most ancient books, I caused reference to be made to all the books of any authority used by the vedarálas, whether brought from India or written in the Island, and am informed no allusion whatever to such a disease can be found, with the exception of the Yóga-Ratnákaré, as I have previously stated.

9. He also asks:—"Is it not likely that Parangi-ledé was primarily intended to specify the venereal diseases? This supposition is not unattended with difficulty. The books which treat of Parangi, I am informed, do not ascribe the disease to impure contact. It is rarely, almost never, alluded to as a consequence of ulcers on the genitals. Some of the vedarálas have an obscure notion that Parangi, particularly that variety of the disease called *Oddi Parangi*, occasionally follows ulcers on the penis. None of them, however, profess to be able to distinguish the ulcer which is likely to be followed by a variety of Parangi from that which is not succeeded by this disease. The Kandyan vedarálas do not in the early stage exhibit mercury for the cure of ulcers on the genitals. Many of them assert that they never knew ulcers in the throat or affections of the bones follow either running or ulcers on the penis. Some, however, state that they have seen these symptoms succeed ulcers on the penis."

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* "History of Ceylon, presented by Captain John Ribeyro to the King of Portugal, 1685." Translated by Geo. Lee.

† In the Bhávaprakáso, a work on Hindu Medicine, by Bhava Missa, written some three hundred years ago, Syphilis is stated to have been introduced by the Portuguese, and is called "Pharinga Róga."

‡ A list of works on medicine in use amongst the Sinhalese will be found in the Appendix.

§ "Notes on the Medical Topography of the interior of Ceylon, &c., &c., with brief remarks on the Prevailing Diseases." By Henry Marshall, Surgeon to the Forces.—London: 1821.

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10. Again he says :—*" There is a complaint mentioned in the Kandyan medical works called Parangi-ledé (Parangi disease). Sometimes the disease is designated by the term *rata maha ledé*—' a foreign virulent disease.' The Parangi disease is divided into seven varieties, namely : —

(1.) Alu (ash) Parangi—an ash-colored desquamating state of the cuticle.
(2.) Oddi Parangi—large ulcers covered with flattened crusts and scabs.
(3.) Custita Parangi – Numerous ulcerated pimples on the skin.
(4.) Góní Parangi – An unequal thickened state of the skin, resembling the skin of an elephant, or it is rough like a gunny bag, with ulcers on some parts of the body.
(5.) Dada Parangi—Great itchiness of the skin, which when scratched breaks out in large ulcers that are generally covered with thick crust or scab.
(6.) Geta Parangi (or knotty)—Pains in the joints followed by bumps or tumours which afterwards burst and form ulcers.
(7.) Aramana Parangi. – Tubercular ulcerations on various parts of the body; sometimes several of the ulcerated tubercles unite, and form a large excrescence.

The above arrangement has the appearance of some discrimination; it is chiefly, however, in appearance. The vedarálas (native doctors) often greatly confound the different varieties.

11 In the absence of any mention of Parangi in any of the native works, a list of which is given in the Appendix, I am inclined to think that the names of the different varieties of Parangi referred to by Marshall were popular terms in use among the natives to distinguish the different forms of disease included under the term. If they were mentioned in any books, they were some *wattórs* or prescription books possessed by some of the native vedarálas, in some instances with short descriptions of diseases for their guidance. These are not books of any authority, but only detail the prescriptions used by different vedarálas; and as the practice of medicine is often continued in the same family for several generations, they are handed down from one to another with such additions as those deemed necessary by the experience of each vedarála, and are jealously guarded from outsiders having any access to them.

It is said that many such books exist among the vedarálas, especially in the Kandyan districts; and endeavours are being made to obtain access to some of them, to find out whether the different varieties of Parangi mentioned by Marshall are mentioned or not.†

12. The following remarks of Marshall,‡ in his Medical Topography, are very suggestive, as shewing the difficulty of diagnosing the secondary symptoms of Syphilis from the eruption of Parangi, and as giving a good description of the latter disease :—

"Constitutional symptoms are, by some vedarálas, said occasionally to follow ulcers on the penis. The secondary affections mentioned are papular, scabby eruptions on the skin, copper-coloured spots and blotches, ulcers in the throat, painful tumours on the shin-bones, and an enlargement of some of the joints. These symptoms receive the inexplicit denomination of *Parangi-ledé:* the primary ulcers do not obtain this appellation.

"The vedarálas state likewise that eruptions and blotches appear on the skins of children and adults, who have not had primary ulcers, exactly similar to the eruptions and blotches which sometimes follow ulcers on the genitals. They do not pretend to be able to assign a specific difference between them, and no distinction is made in the plan of cure.

"In regard to tumours on the bones and swellings of joints, the most learned of vedarálas whom I have seen says that he considers these as aggravated symptoms of the equivocal disease called *Parangi-ledé;* and as the symptoms which obtain this appellation occur without primary sores, he

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* Op. cit., p. 43 *et seq.*

† I have since obtained a translation of the varieties of Parangi given in the Veda Pota, a medical work written by Don Siman Tilakaratna, of Mátara, 1787, A.D:—

I. *Parangi lede.* පරංගිලෙඩ.—Parangi disease.
Rasu una.— tyalism and other effects produced by mercury.
1. *Parangi wane.* පරංගිවණේ —Parangi ulcer.
A. *Neranawané.* නෙරනවණේ. Protruding ulcer.
B. *Pádu wané* පාඩුවණේ.—Washing ulcer. (Aramane wane of Marshall ?)
2. *Parangi rujá.* පරංගිරුජා —Parangi pains.
3. *Geta Parangi.* ගැටපරංගි —Knotty Parangi.
4 *Loku dada wana.* ලොකුදද වණ.— Dada Parangi, a form of Parangi resembling a kind of skin disease called *dada.*
5. *Oddi rata maha Parangi.* ඔඩ්ඩිරටමහපරංගි.—The signification of this term is obscure. The literal meaning of it so far as I can understand is, "The great Parangi of the Oddi rata" (coast country.)
6. *Parangi sori* පරංගිසොරි.—Parangi itch. (Kusta Parangi of Marshall.)
7. *Pup nerima.* පුප්නෙරිම.—This is the same as *Dumas*, but a more expressive term, in that it means the protrusion of the fleshy-like granulations, a characteristic feature in this form of the disease.
8. *Paya pelíma.* පයපැලීම—Cracking of the soles of the feet.

The last mentioned forms of the disease *Pup nerima* and *Paya pelíma* are said to appear as sequelæ some time after the disease had occurred.

‡ Op. cit., pp. 69, 70.

therefore believes that nodes and enlarged joints appear unconnected with sores on the penis occasioned by sexual contact.

* * *

"Enlargements of the bones, or ulcers in the throat, are, I believe, very rare consequences of ulcers on the penis, in the Kandyan country; I have not seen a single case labouring under any of these constitutional affections. Several cases of a cuticular eruption, denominated *Parangi-ledé*, have come under my observation. They almost all resembled the "tubercular eruption of syphilitic appearance," described by Dr. Bateman in the 5th volume of the Medico-Chirurgical Transactions.

"The eruptions sometimes occurred during the existence of ulcers on the penis, and sometimes after they had healed. In one case it appeared in a young boy, who had never had connection with a female. The patients in general stated that the eruption made its appearance after febrile symptoms of three or four days standing. The coming out of the eruptions was not immediately followed by a return of health. Pains of the limbs, impaired appetite, languor, and a reduction of strength, continued for some time. For the most part, the eruption appeared first on the face; generally, however, it eventually extended over the body. The protuberances were most numerous on the face, and, next to the face, in the axillæ and groins sometimes. After an attack of fever a fresh eruption occurred before the preceding one had entirely disappeared. The eruption, in some cases, was remarkably protuberant. For the most part the protuberances were circular, from a-quarter to a-third of an inch in diameter, smooth, and in general they were flattened on the top. After the lapse of an indefinite period, the cuticle which covered the protuberances burst: a glairy fluid then oozed from the ruptured spot, which, by drying, formed an elevated grey-coloured scab. Some of the large scabs covered spongy granular excrescences. The protuberances did not in any case show a disposition to ulcerate.

"The eruption was remarkably uniform in almost all the cases; still, however, there was some variety in its appearances. The circular abrupt rim or edge of the protuberant spots was more conspicuous in some cases than in others. No oozing of glairy fluid took place in several instances, and consequently there was no scabbing.

"In one case, the eruption and general symptoms of impaired health resisted the continued use of a great variety of vegetable decoctions, prescribed by a vedarála, for three months. At the end of this period the blue pill was given, which produced ptyalism in about four days. After the lapse of about a week the protuberances had all disappeared; health returned rapidly.

Several other cases of this kind of eruption were cured by slightly affecting the mouth for only a few days. In three cases which came under my eye, the eruption disappeared without medicine. The spontaneous recoveries were, however, more tardy than when mercury was exhibited."

13. Allowing that the term "Parangi" was at first restricted to Syphilis, and that it now includes a number of distinct diseases, it will here be stated the names of those which have been identified. They are principally—

(*a*) Syphilitic diseases in all stages and forms.
(*b*) Frambœsia or Yaws, or a disease closely allied to it, to which the term "Parangi," if retained, should be restricted.
(*c*) Lupus.
(*d*) Ordinary scrofulous ulcerations with enlargement of glands.
(*e*) Common forms of skin disease.

14. Marshall gives the following account of Aramana Parangi, and no one reading it can doubt the identity of the disease he describes and Lupus, which is very common in all parts of the Island.*

"I have seen a number of Kandyans suffering under a widespread ulceration of the skin. In the Sinhalese language this complaint is called "aramana-wané." The disease occurs on all parts of the body, except perhaps the hairy scalp. The outer circle of the ulcerous surface extends while not unfrequently the central area is healing; occasionally while some of the ulcers are healing, other parts of the skin become affected and eventually ulcerate. Commonly the skin ulceration has a round shape; sometimes it is oval, occasionally it has no determined figure, and spreads over a large surface. The ulcers have never callous or elevated edges; in appearance they resemble phagedenic sores. The discharge from the ulcerated surface is generally a colourless, glairy fluid, which by drying forms an elevated hard grey scab. The cicatrices are generally well defined. Each cicatrix is covered with a smooth shining cuticle. For the most part they are flat, but sometimes they are elevated and wrinkled, resembling the skin of a dried raisin. This disease occasionally commits great ravages on the face. The forehead, cheeks and lips are much liable to it. The nose and eyelids, however, suffer more from an extension of the ulceration than perhaps any other parts of the body. Sometimes the alæ of the nose become tubercular and ulcerate, more frequently they are destroyed by the progressive ulceration which extends along the floor of the nostrils and destroys the velum pendulum palati. Superficially the ulceration creeps up to the lower eyelids, which are frequently destroyed, and occasionally the sight of the eye is lost. Sometimes the lower eyelids are everted from the cicatrization of the ulcerous surface on the cheeks. In one case, which came under my observation, the lips were so far united as hardly to admit the passage of a finger into the mouth.

"Aramana-wané rarely affects the bones, except the thin bones of the nose; sometimes it extends over one or more joints, which become anchylosed, probably in a great degree from long want of motion. The disease prevails more among the poorer classes than among the wealthy.

* Op. cit., page 41.

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The latter are not, however, entirely exempted from it." Further on he states :—"The Kandyans seem to consider this complaint as nearly incurable. Under the use of simples, the ulcers occasionally heal up ; often, however, only for a short time ; a permanent recovery seems to be hardly ever expected." "I have seen," he adds, "eight or ten cases treated with blue pill, which was given so as slightly to affect the mouth. The symptoms were universally improved ; indeed, all those who took the medicine regularly recovered. How far the cures may be permanent, I am unable to say."

15. Next in frequency to syphilitic affections comes Frambœsia or Yaws, or a disease to which the term Parangi should be restricted ; but it is difficult to obtain characteristic cases of the disease in its early stages, although its later manifestations or sequelæ are met with in nearly every hospital of the colony.

16. If, to explain the origin of this disease in Ceylon, it is necessary to call in the aid of importation, there will be little difficulty in indicating how it may have been introduced ; and, if it was imported in the way here mentioned, it will serve to explain the cause of its being included under the term Parangi, and the reason why so much confusion has hitherto existed in describing the disease, and why by some Parangi is considered syphilitic, and by others non-syphilitic.

17. The Portuguese, and again the Dutch, were accompanied by a large number of negroes from Africa, and it is possible they may have introduced Yaws or Parangi in addition to Syphilis.

18. Against this hypothesis, it must be borne in mind that Parangi is least prevalent in those parts of the Island which were occupied by the Portuguese, whilst it prevails in places where till very recently few Europeans ever penetrated, and with which there was little or no communication with other parts of the Island.

19. It is possible of course to suppose, if the disease was once introduced, it may have made its way to those remote parts where it found a suitable home among the ill-clad, ill-homed, and ill-fed people, surrounded as they are by all insanitary conditions.

20. In the definition which is given of Parangi all forms of disease are excluded, except the one which is considered to be Yaws or one closely allied to it; however, in reading the reports and cases, and in examining the illustrations which accompany these remarks it should not be forgotten that more than one disease is probably described and illustrated, although much care has been taken.

21. Parangi may be defined as a specific disease, produced by a variety of causes, all contributing to debility of the general system and traceable to poverty, innutritious food, impure water, and residence in insanitary dwellings in malarious localities ; propagated by contagion, generally, through an abrasion or sore, but sometimes by simple contact without any solution of continuity being present or recognisable ; marked by an ill-defined period of incubation, by certain premonitory symptoms referrible to the general system, and by the evolution of successive crops of a characteristic eruption passing on in severe cases, and in weakly subjects, into unhealthy and spreading ulceration, whose cicatrices are very prone to contraction ; running a definite course ; attacking all persons irrespective of sex or age; and amenable to appropriate treatment.

Etiology.

22. The etiology of the disease is still obscure. The cause, whatever it is, has not been ascertained, but little doubt exists as to its existence in the discharges coming from the eruptions and ulcers. It seems exceedingly doubtful if it exists in the natural secretions; and with regard to the milk, it may be stated that it does not exist there, for the reason that healthy children, begotten of a diseased parent and nursed by her, have frequently not developed the disease.

23. It is a circumstance worthy of consideration and investigation that the geographical distribution of the disease in this Island is that of deficient water-supply and the use of artificial tanks for the storage of water. This is no mere coincidence. It seems to be of considerable etiological significance, as pointing to the water as faulty and probably causative of the disease.

24. The tanks, as a rule, furnish all the water needed for the various uses to which man subjects it, and the character of the water is so equivocal as to have arrested the attention of all engaged in the study of Parangi. The tanks further harbour during the warmer parts of the day all the cattle of the neighbourhood, and naturally add thereby largely to its doubtful—nay, filthy character.

25. Climatic influences are also not without import in the causation of the disease. It has been noted that the setting-in of the wet weather is generally the prelude to a fresh outburst, and to an aggravation of the pre-existing disease. Whether this be connected with disturbance of the tank water during the downpour, the setting free of malarial poisons, or both, has not been settled. As somewhat to the point, it may be mentioned that the increase in malarial fever is also cotemporaneous with the advent of wet weather.

26. The habitations of the afflicted are such as seem peculiarly adapted to the fostering of disease, and perhaps of generating it. Ventilation is an unknown art. The salutary influences of light and air are not heeded. The habits and customs of the people are filthy in the extreme, and personal cleanliness is seldom attended to. The food is innutritious and deficient, especially in nitrogenous elements. The staple food is a grain

cultivated largely and known as kurrakan.* Rice is a luxury. Game and meat are very rarely used for food, and when meat is obtained generally it is cut in strips, dried and eaten at varying intervals till the supply is exhausted.

27. Whether any disease in the grain eaten is accountable for Parangi, is not settled. There is nothing in its appearance to justify such a supposition. As kurrakan is a "dry grain," and only requires little moisture, a district where it is grown means one where water is deficient and consequently impure.

28. In this connection, it must be mentioned that marriages of consanguinity, undertaken at very early ages, and frequently where both are diseased, are not without some causative influence, if not in the production at least in the propagation of the disease. It only remains now to examine the nature of the soil of the various districts afflicted with Parangi. It generally consists of a sandy loam particularly suitable for the cultivation of grain, were it not for the want of moisture due to frequent and prolonged droughts. The country is generally overgrown with shrub and low jungle, and forests of valuable timber occur at places. The country is level, but interspersed here and there with hillocks of varying altitude.

29. In regard, then, to the etiology of the disease, it may be stated that several factors are in operation, and that the chief of these appear to be innutritious food and bad water, residence in ill-ventilated and ill-constructed buildings massed together in close proximity to each other, and other circumstances which contribute towards a debilitated state of the system in a pauperised and unclean people.

Symptoms.

30. In describing the symptoms, the accurate description given by Mr. Garvin, M.B., is followed.

The symptoms which characterize Parangi disease may be referred to four stages. The first stage comprises the period of incubation or latency, which is unmarked by any peculiar phenomena, and varies in duration from two weeks to as many months. The second stage comprises the premonitory fever—the earliest indication of constitutional disturbance—and which generally terminates with the evolution of the eruption, viz., in a period varying from two to seven or eight days. The third stage commences with the eruption, and terminates with the complete resolution of the disease or its passage into the fourth stage or that of sequelæ. The two last stages together cover a considerable period, in some cases as many as six or eight years. Passing over the first stage, which, for obvious reasons, is seldom noted, there are certain symptoms which invariably accompany the second stage, and have been noted and recorded by all observers. These symptoms point to the general system, and consist of slight pyrexia accompanied by a feeling of *ennui* or *malaise* and pain in the majority of the joints of the body. The character of the pain has been variously described, but usually as of a dull, running or shooting kind.

31. It may here be mentioned that the disease is nearly always preceded by an ulcer, generally situated above some bony prominence and caused by scratching. It is shortly before, or on the healing of this initial sore, that the symptoms of the second stage declare themselves. In the third stage the characteristic eruption appears and passes through its various phases. The evolution of the eruption is in successive crops; the first appearing generally on the face, the next on the body, and the last on the extremities. There is, however, really no order in the evolution, and the positions are frequently reversed. It is frequently noticed that the first eruptions appear around the cicatrix of the initial sore, and thence extend to the different parts of the trunk and extremities.

32. A careful examination of the eruption would seem to favour its division into three forms, differing only in minute particulars. The prognosis being, however, much affected by the character of the eruption, a close description of each will be necessary.

33. In all forms the eruption first appears as papules, bearing a striking resemblance to acne or lichen: certain changes then ensue, and upon these changes the varieties depend. In the mildest form the papule gradually acquires a yellow tinge, sinks to the level of the surrounding skin, and while extending in one direction generally heals at the opposite, this latter process being indicated by a slight depression and pigmentation of the skin.—(Plate No. 11.) In this variety, which may be designated lupoid, in reference to its peculiar mode of extension and healing, there is no abrasion or loss of substance of the cuticle, but upon the eruption healing slight desquamation occurs, and the restitution of the part to health is unattended by any discharge or exudation. In the two next varieties the changes which ensue are peculiar and striking. The papule, which was no bigger than a pin's head, increases rapidly in size till it becomes as large as a pea, or larger. It stands prominently out of the skin, and its apex begins to become rough from desquamation of the epithelium. Then a sort of gluey matter exudes and binds the exfoliated epidermal scales together, the papule shrinks and acquires a brownish yellow hue, and a crack or fissure occurs where the sound skin joins it. The eruption is now perfect, and possesses a great resemblance to Rupia; only the crust is less conical, cockle-shaped and stratified.

* Elusine Corocana.

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To this form of the eruption the term rupial or rupia-like may be applied.—(Plates 12 and 14.)

34. If during the hypertrophy of the papule and the exudation at its apex of the gluey matter, it be subjected to rough handling or friction, or if there be much debility, the exudation becomes excessive, and the crust softens and becomes removed as quickly as it is formed. In this way the papule enlarges generally all round, pus exudes from the subjacent sore, and a dirty yellow soft crust forms. To this variety, from its great resemblance to Condyloma the designation condylomatous may appropriately be given.—(Plates 2, 10, 11, 13, 14, and 16.) The process by which healing takes place is simple. In the lupoid form it has been stated how it occurs. In the rupial or rupia-like form the peculiar crust loosens gradually and falls off or is removed, exposing a sore underneath. This sore is, as a rule, exceedingly clean and healthy, the granulations standing out individually, and it appears like a ripe raspberry or, when magnified, like the "edible portion of a pomegranate."—(Vide illustration, plate 12). In those cases where the crusts drop off spontaneously, the subjacent sore is found healed over and deeply pigmented. If the crust be removed before this has taken place, the sore is speedily overrun with lymph, and generally heals over in a couple of days. The crust is never reproduced even in immature papules. The method of healing in the condylomatous variety is as in ordinary ulcerations, viz., by the development of cicatricial tissue from the circumference inwards.

35. In all cases the resulting cicatrix is deeply pigmented, the pigmentation seeming to reach its height in about a week, and then gradually declining, till, at the expiration of several months, the part appears restored to its usual appearance and state.

36. This is the history of the eruption of Parangi in unfortunately a comparatively few cases. When the disease passes on to its fourth stage, the eruptions break down, the subjacent ulcers become unhealthy, spread rapidly, destroying the skin to great depths, the discharge becomes profuse, the pain great, the desire for food is abolished, emaciation ensues, and the general health of the patient suffers so much, that he is no longer proof against nor able to combat ordinary inflammatory diseases; an attack of one generally is the last event of his life. When the patient survives the fourth stage, and the ulcers heal, the most horrible distortions and deformities ensue from the contraction of the cicatrices, and render him a misery to himself and his surroundings.—(Vide illustrations, plates 5, 6, 8, 15, 17). All these and the various diseases of the bones, &c., may be correctly ascribed to the abuse of a remedy which in skilful hands contributes to the cure of the disease—mercury.

37. It has been mentioned that the eruption occurs in successive crops and over the face, trunk and extremities. It frequently occurs also on the fauces, soft palate and base of tongue. In these situations the distribution of the eruption is sometimes nearly symmetrical, but, as a rule, irregular. In a great number the eruptions retain their individuality, while in other and in particular situations such as the axilla, cleft between the nates, &c., the eruptions run into each other, become confluent, and cover considerable patches of surface. In other cases, again, the eruptions are disposed circularly and include a portion of sound skin or old cicatrix.—(Plate 1.) The disposition of the eruption is never observed in the course of nerves.

38. When the eruption attacks the soles of the feet and gives rise to the condition known as *Dumas*, it presents some peculiarities. The horny cuticle protudes and becomes very painful, and in a short period ruptures and gives egress to a fungoid growth covered with a dirty yellow scab. This fungoid growth consists of hypertrophied papillæ and fibrous tissue.

39. Microscopic examination of the tissues reveals nothing more than hypertrophied papillæ, and the morbid action would appear to be limited to the epidermis, and to consist of a rapid proliferation and necrosis of its elementary cells.

40. The blood presents no peculiar changes, and the relative proportion of the colored and colorless corpuscles would appear to be normal.

41. There are certain important points in the history of the disease which may be discussed and elaborated here. The questions of heredity, and the contagious or non-contagious nature of the disease, may be examined together. Opinions are divided on the first of these questions, but they seem to point more in the negative than in the positive direction. No cases are recorded of the disease being developed congenitally, though several records allude to children shortly after birth developing the disease from contagion. Much depends on the signification attached to the word "hereditary." There can be little doubt that the offspring of those afflicted develop the disease more frequently; but this is due to the persistence among them of those causes which originally contributed to the outbreak of the disease, and to the enhanced risk of contagion. The offspring of the afflicted cannot be said to be necessarily possessed of weakly or vulnerable systems, for recorded cases are against this view. It may, in short, be stated that the disease is not hereditary. With regard to its contagious nature, little doubt remains. In fact the *de novo* origin of cases is considered by many exceedingly problematical, owing to the multifarious ways in which contact may be brought about, and the inevitable result of such contact be it ever so slight. Against the view of the contagious nature of the disease, it may be urged that no cases have arisen from contact or association with the afflicted in the wards of a hospital or of the propagation of the disease to the dressers and attendants. This is easily explained when we view the surroundings of a hospital, as contrasted with those of

a hotbed of the disease. In one case, sanitation and the laws of health are in the ascendant; in the other, totally disregarded.*

42. For the propagation of the disease it is absolutely necessary that the disease shall be in contact with the healthy tissue even though an abrasion in, or a broken state of, the latter be absent. The same applies to the sexual act, the suckling of diseased children, and the thousand and one ways in which contact occurs between healthy tissues and the virus resident in the eruption, in the discharges from them, and in the clothing impregnated with the discharges.

43. The disease has been ascertained not to be auto-inoculable (as the experiments of one of the reporters shew).

Whether the disease is capable of transmission by the various natural secretions, is open to much doubt. That the milk is innocuous is conclusive, in that often children suckled by a diseased parent have retained their health throughout, and been free through life of any of the manifestations of the disease.

44. The disease, however generated or acquired, usually runs a definite course—*i.e.,* to the conclusion of the third stage - in those who enjoy skilful treatment or are left solely to nature; unskilful interference only prolongs the disease, and there is reason to believe produces those horrible sequelæ detailed above. The average duration of ordinary cases of Parangi (unaffected by treatment) is about six months, though it sometimes is shorter and frequently longer. If the fourth stage be included, the duration is very great, and varies, with the nature and severity of the local manifestation, from two to eight years or more.

45. The disease attacks all people alike, though, as a general rule, the well-fed and comfortable are affected only slightly, or by the milder forms, and shake off the disease sooner than the ill-fed, ill-clad, indigent and dirty. It is a matter of doubt whether a person once attacked enjoys an immunity from the disease. Cases occur from time to time with what appear to be fresh attacks; but, upon careful examination, it is ascertained that the first attack was really not totally eradicated, and that one or two eruptions existed when treatment was discontinued. A proper cure once effected would seem to render a recurrence at least doubtful.

46. The disease, although appearing formidable, seems to exercise very little influence upon the general health, unless it be maltreated and pass on into the various sequelæ. The people suffering from it appear to live to a ripe old age, and instances of long life are not wanting among them.

Nature and Diagnosis of Parangi.

47. The opinions advanced as to the nature of Parangi are varied. It is supposed to be tertiary Syphilis degenerating into Leprosy (Danforth, Maartensz); a syphiloid disease resembling Sibbens or Sivvens, once very prevalent in the south of Scotland (Loos); a tertiary Syphilis kept alive by intermarriage, diluted by time and occurring in the form of Lepra (Loos, Vaitialingam); a disease *sui generis* allied to Syphilis (Attygalle); and not allied to either Syphilis or Leprosy (Modder); and, lastly, the Yaws or Frambœsia of the West Indies slightly modified (Garvin, Vandersmagt).

These opinions, the outcome of much thought and observation, do not admit of reconciliation, and an inquiry into the differential diagnosis of the disease will therefore be necessary in attempting to set the matter finally at rest. Again, it should be borne in mind that under the term Parangi several diseases have hitherto been described, and the diversity of opinions expressed as to the nature of the disease may thus be explained. The diseases which Parangi resembles are Syphilis and its varied manifestations—Lupus, Leprosy, and Frambsœia.

48. There seems to be very little ground for supposing Parangi to be Syphilis or its manifestations. The resemblance is restricted to the peculiar eruption, the occasional disorders to which the bones are subject, and to the curative property of mercury in both diseases. If a careful enquiry be made into the history of the case, there is a total absence of any reference to a primary infecting sore. When a sore does exist on the penis, it is generally secondary to the evolution of the eruption. The eruption is frequently found on children and youths perfectly innocent of sexual desires or gratification. The eruption, though resembling Rupia, differs from it in several respects. It is not a pustular eruption, the scab is not reproduced once it is removed; it is less stratified and cone-shaped, and the subjacent sore is, as a rule, healthy.

The condylomatous variety resembles the mucous tubercles of Syphilis; but in Parangi there is no particular situation for them, the verge of the anus and other parts of the body being attacked alike. The eruption of Parangi resembles then the secondary stage of Syphilis, but it is questionable whether the eruption of Syphilis could be transferred from generation to generation, and yet remain in the same stage. Instances occur where the children and parents are at the same stage of the Parangi disease, and where a child communicates the disease to the previously healthy father. In Syphilis, the case is different, and healthy parents never beget children who develop the disease shortly after

* Case No. 13 (illustration No. 12) recorded by Mr. Garvin seems to trace his illness to contagion in a hospital ward, and Mr. Garvin, in his report, seems inclined to entertain that view of its origin.

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birth. Allowing that Parangi is tertiary Syphilis, only modified by the unusual occurrence of the eruption peculiar to its secondary stage, the question arises—Is tertiary Syphilis transmissible by inheritance? This has been answered in the negative by competent authorities.

Again, in nearly all cases of Parangi we miss the characteristics of transmitted Syphilis. There is no history of frequent miscarriages, the children are never born with the disease, they are not as a rule unhealthy, nor do they develop signs peculiar to inherited Syphilis; their teeth are not bad, nor do they exhibit the abnormal appearances pointed out by Hutchinson, the bodily development is not interfered with, there is no epiphysial or glandular enlargement, and the eyesight is never affected. The parents frequently exhibit none of the later symptoms of Syphilis. In Parangi, in some cases, the bones suffer, and peculiar indolent ulcerations take place; but this has been allowed by the staunchest supporter of the syphiloid nature of the disease (Loos) as frequently due to the abuse of mercury; and he states that he has not been able to find indications of Syphilis in new-born infants.

With regard to the beneficial effect of mercury in both diseases, little need be said. Standing by itself, it cannot be considered a criterion meriting more than a passing notice.

It may therefore be confidently asserted that Parangi is not Syphilis, and is in no way related to that disease.

49. Lupus is a disease to which Parangi certainly bears little likeness. In the later stages the ulcers acquire characters like those of Lupus, but are then really cases of Lupus engrafted in the disease on the fearfully destructive results of promiscuous mercurialization. Lupus is, moreover, much less generally diffused than Parangi, and its destructive effects on the tissues are more marked. The mode of origin, the history, constitutional signs, results and treatment are widely different in the two diseases.

50. Parangi can hardly be confounded with leprosy, the peculiar appearance of the skin, of the lobes of the ear, the nodular growths, the anæsthesia, the enlargement of prominent nerves, the gangrenous ulcerations, and the peculiar feebleness of the system, are all so characteristic of the latter.

51. *Frambœsia, or Yaws,* is the disease to which Parangi bears the most striking likeness. The history of both is identical, and the minor points of dissimilarity may be easily accounted for by ascribing to the climate and surroundings generally some modifying influence.

The absence of the raspberry-like excrescence in Parangi is not invariably the case in that form of it known as "Dumas."—(Vide plate 4*a*.) This fungoid growth is well marked, and although it does not really resemble a raspberry, it certainly tallies with the description given by Dr. Imray, viz., a piece of coarse cotton wick dipped in a dirty yellow fluid and stuck on the skin in a dirty, scabby, brownish setting. The presence of affections of the bones and destructive ulcerations in Parangi cannot be urged as points of difference, as these results are traceable to unskilful treatment, and do not probably possess any relationship to the disease itself.

In every other point the similarity of the two diseases is unquestionable, and as these points have appeared in detail under the symptoms, no reference to them appears necessary at this place.

Prognosis.

52. It has been mentioned that although a chronic and unsightly disease, Parangi exerts but slight influence on the general health and longevity of its victims. It is by no means a fatal disease, and the prognosis is generally favorable, and is affected by the nature of the eruption. In the lupoid variety, the restoration to health is rapid and perfect; in the rupial variety, the disease runs a more chronic course; and in the condylomatous variety, the disease is intractable, and frequently, particularly under unskilful treatment with mercury, runs into the stage of sequelæ.

The prognosis becomes gloomy when rapid debility and ulcerations occur, and a fatal termination is generally due to some intercurrent disease.

Treatment.

53. The treatment of Parangi may be considered under the two heads "Medicinal" and "Dietetic."

The medicinal treatment varies with the stage of the disease. In the second or febrile stage everything which will facilitate the appearance of the eruption should be adopted. There is no greater mistake than endeavouring to repress the evolution of the eruption. For this purpose all medicines which act on the skin and increase the cutaneous circulation may with advantage be employed; but none will prove so effectual as the employment of warm baths in combination with diaphoretics, diuretics, and the use of warm clothing, or powders of sulphur and cream of tartar.

When the disease has passed into its third or eruptive stage, a material alteration is necessary in the treatment. At this stage the employment of mercury suggests itself. In the various nostrums used by the vedarálas, mercury forms a prominent ingredient, but baneful effects traceable to its unskilful use ought to be a sufficent reason for discontinuing it or using it only sparingly. It may be stated with regard to mercury that, though in some of its forms it is a useful drug, it does not appear to be essential. It cannot be

regarded as a specific for the disease; it probably acts as a powerful alterative eliminant. The best method of giving the drug is by fumigation or by external application, the process described by Lee being adopted in the first case, and the diluted citrine ointment rubbed into the eruptions in the latter. Should it be decided to give mercury by the mouth, the perchloride is the salt to be selected, and it should be given in combination with the iodide of potassium, the latter aiding the alterative action and the elimination of the mercury after it has had time for its operation. In every case care should be taken that pytalism is not produced, and directly the gums commence to exhibit signs of redness, heat, tumefaction, it should be suspended. The resumption of the drug will depend upon the result of its first trial, and should this have been attended with marked benefit a cautious use of the drug may be resorted to.

In cases marked by debility, the treatment described above should be supplemented by the use of tonics, such as cod liver oil and the syrup of the iodide of iron. Particular complications and symptoms call for particular treatment. This is notably the case with the running or flying pains, for which nothing is so efficacious as a large dose of iodide in combination with the bromide of potassium.

In "Dumas," the protuberant fungoid mass should be destroyed with strong nitric acid, or excised, and the raw surface touched with lunar caustic. To obviate the distressing pruritus which occurs in the condylomatous variety, particularly when situated near the verge of the anus, calomel ointment appears highly efficacious. Instead of the local use of any mercurial preparation, an ointment made with carbolic acid or any stimulating oleaginous application may be used. Arsenic is a remedy which should be used more extensively, and a decoction made of *Smilax chinensis* or the root of the *Hemidesmus indicus* may be utilized as a vehicle for its administration. The combination of sulphur and cream of tartar is also useful at this stage, particularly in the case of children and delicate women.

For the extensive and unhealthy ulcerations, local treatment is generally useless, unless combined with appropriate constitutional remedies. As these ulcerations in the main depend upon the injurious use of mercury, iodide of potassium should be exhibited to overcome and eliminate it, and the local treatment should be of a stimulating character. A lotion containing the tincture of iodine, a strong lotion of carbolic acid (two drachms to the pint), turpentine ointment, and cod liver oil, seem particularly useful. Where the ulcers are very indolent, the liquor epispasticus may be applied, and a large warm poultice placed over all. If the cicatrix be very dense and interfere with the healing of the ulcer, it may be separated from the surrounding skin by a deep cut carried round it, or it may be excised. The lesions in the bones, abscesses, &c., which hardly belong to the disease, should be treated on general surgical principles ; but it should always be remembered to what they, as a rule, owe their origin, and appropriate constitutional treatment be used in combination. Should the ulcers partake of the character of Lupus, the surface should be destroyed for a considerable depth, or the lupoid growth removed by scraping with a sharp spoon.

54. Although the medicinal treatment is of great importance, this is very much enhanced by a due regard to the diet, cleanliness, &c., of the patient. The food given should be of a light, nutritious kind, and changed from time to time, so as not to tax the appetite of the patient too much. As much of the food used in districts where the disease is endemic is of a non-nitrogenous character, care should be taken that the diet be rich in flesh-forming and fatty materials.

Children at the breast should have cow's milk in addition to the precarious supply from the mother. Alcohol is better avoided, unless there be marked indications for its use.

Lastly, everything that will conduce to the comfort of the patient should be adopted ; cleanliness may be best obtained by a daily warm bath with the free use of soap, and a change of clothing whenever necessary. In view of the possibility of the contagion being acquired in the hospital ward, cases of Parangi should not be mixed with others ; and the clothing, bedding, and utensils used should also be different in the two cases.

Prophylaxis.

55. Vigorous efforts for eradicating the disease should be made. Under the etiology of the disease, reference was made to the character of the people, the dwellings, &c. These points should in every case receive due attention. It will not be out of place to consider in this connection the steps which have already been taken with this view, and the results which have accrued therefrom. Hospitals have been established for the reception and treatment of patients, and are situated in the heart of the country where the disease prevails. Medical aid is brought, as it were, to the doors of the people. The results have however not been of an encouraging nature, and point to the system of dispensary relief, so ably put forward by Dr. Loos, as unreliable and certainly not of lasting benefit. In the record of cases frequent reference is made to patients returning from time to time with the disease. This argues doubtlessly that the people are alive to the benefits of skilful treatment ; but it argues also that hospital or dispensary treatment cannot, of itself, be viewed as sufficient for the eradication of the disease. Moreover, when the peculiar apathy of the people is taken into consideration, the highly insanitary state of their dwellings, their relapse into all old habits which were so fruitful previously in producing the disease, there can be no doubt that hospital or dispensary treatment, unbacked by other means, is

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nearly useless in eradicating the disease, and only brings about a false state of security. For, relying upon hospital treatment, sanitation, cleanliness, &c., are set at defiance with the inevitable and lamentable result of a re-appearance of the disease.

The system of irrigating the country by restoring the ancient tanks, is absolutely necessary, and the eradication of the disease can be effected only by the march of civilization. Analogous instances we have in the disappearance of the Sibbens disease of Scotland, and Leprosy from most of the countries of Europe. That Parangi is a disease due to innutritious food and destitution, is beyond doubt. It finds a congenial soil among the indigent of the Vanni, a people remarkable for their ignorance of all matters relating to agriculture, for their apathy and helplessness. They rely solely upon slight efforts in cultivating the soil, the failure of a crop—a by no means unfrequent occurrence—meaning destitution and its accompaniment—disease. The remedy for this state is everything that will improve the material prosperity of the people and the land they live in. There should be no half measures adopted, but a system of rational agriculture, presided over by a competent Commissioner, should be introduced, and though many prejudices will have to be met and overcome, the people should be gradually weaned from their apathy, and brought to exert themselves so as to better their condition in life. Success may not be rapid, but it will eventually come, provided only the measures are enforced in no half-hearted manner or by persons wanting in energy. As a result of this, the condition of the people will necessarily improve, the food supply will not be inadequate or of doubtful quality, the supply of water will be better than at present, and gradually sanitation and the laws of health will come to receive due attention and recognition, and a civilized community in a prosperous locality be the result.

Combined with the irrigation of the country, the restoration and building of tanks, and the enforcement of a rational system of agriculture, roads may be opened up so as to make the chief towns easily accessible to even the most remote; experimental gardens may be tried, and a reward offered to pioneer efforts in civilizing and cultivating hitherto inaccessible and little known regions. The various revenue officers of the Government will doubtless interest themselves in these matters, so likely to contribute to the prosperity of their agencies and the people under their immediate charge, and energetic action on their part in enforcing all matters referred to, with kind and considerate treatment and combined action on the part of the medical officers of the various districts in the treatment of the diseased, must necessarily bring about a state incompatible with the persistence of a disease which has decimated the land for the last century.

56. Some points alluded to in the papers which accompanied this report require a few remarks.

(*a*) On the question of the propagation of the disease by means of vaccination alluded to in the extracts from the administration reports of Messrs. Morris and Steele, the most careful enquiries have been made, and it is satisfactory to be able to state that there is absolutely no evidence in proof of the assertions.

Parangi prevails in districts where, owing to its existence, it is impossible to carry on vaccination from arm to arm, and in the analysis of the cases in the register, a copy of which is given, it will be found that out of 241 cases recorded, the disease appeared in 57 before vaccination, in 48 who were never vaccinated, and in 134 in persons who were vaccinated at some time or other; but in none was there any connection between vaccination and the appearance of the eruption of Parangi. In two cases it is not stated whether the patients were vaccinated or not.

(*b*) On the question of inoculation, which is practised in Africa and the West Indies by the Negroes on the estates, to acquire Yaws and to escape work, allusion is only made by Mr. W. D. Wright, when Government Agent of the North-Western Province; in his Administration Report for 1871 he says:—

"When reading a few years ago Dr. Loos's report about Parangi, I do not remember having seen any notice of a means of preventing the sad consequences of the disease by a species of inoculation, and will therefore describe the practice in the remote parts of Vanni District. It is to make children, when they are about one year old, partake of rice off a leaf or plate on which a person suffering from the disease has eaten. In a short time, pustules like itch, appear on the child's body, and then medicines containing minute quantities of mercury are administered, which cause the pustules to dry up in seven days, the scales to fall off, leaving deep dark marks which in course of time disappear. It is said that this is an almost certain prophylactic, and that though the disease may attack one who has been so guarded, the effects are never serious."

W. R. KYNSEY,
Principal Civil Medical Officer and
Inspector-General of Hospitals.

Colombo, 21st March, 1881.

PARANGI DISEASE.

Analysis of Reported Cases.

RECORDED CASES.

ANALYSIS OF THE CASES RECORDED IN THE REGISTERS.

Number of cases ...	241.
Age in years ...	One to five, 20; six to ten, 24; eleven to fifteen, 19; sixteen to twenty, 32; twenty-one to twenty-five, 23; twenty-six to thirty, 35; thirty-one to thirty-five, 24; thirty-six and upwards, 63; not recorded, 1.
Sex	161 Males, 78 females, and 2 not recorded.
Race	166 Sinhalese, 36 Malabars, 7 Moors, 30 Tamils, 1 Canarese, and 1 Coast Cooly.
Occupation or condition ...	68 Cultivators, 2 Potters, 1 Tappal-runner, 12 Coolies, 1 Cattle-keeper, 5 Farmers, 5 Labourers, 2 Dhobies, 1 Trader, 1 Baker, 6 Beggars, 2 Masons, 2 Fishers, 1 Boutique-keeper, 1 not recorded, and 131 of no occupation.
Duration of disease previous to admission. ...	One month and under, 10; above one and up to two months, 9; above two and up to three months, 19; above three and up to six months, 31; above six months and up to one year, 29; above one and up to five years 63; above five years, 77; not known, 2; not recorded, 1.
Physical condition on admission. ...	Cachectic, 38; anæmic, 8; emaciated, 59; healthy, 92; ill-nourished, 1; ulcerated, 1; debilitated, 3; broken health, 1; pale and weak, 1; bilious temperament, 1; sallow-looking, 3; bad, 1; delicate health, 1; not recorded, 31.
Is it a first or second attack? ...	First attack, 153; second, 50; third, 6; fourth, 2; fifth, 2; sixth, 3; seventh, 1; tenth, 1; several attacks, 4; unknown, 2; not recorded, 17.
Form of disease ..	Pustular, 36; ulcerative, 83; nodular, 3; tubercular, 15; papular, 8; scaly eruptions, 13; vesicular, 3; condylomatous, 1; rupial, 2; psoriatic, 6; scabby, 1; puck parangi, 8; gadi parangi, 2; dada parangi, 1; oddi parangi, 1; mulberry-like eruptions, 2; and not recorded, 56; (*a*) primary, 68; (*b*) secondary, 112; tertiary, 2; (*c*) sequelæ, 26; and not recorded, 33.
Any other members of the family affected; if so, how many? ...	In 27 the whole family; in 12 parents only; in 5 fathers only; in 13 mother and others; in 22 parents and others; in 2 wife and children; in 6 wife and others; in 8 one member only; in 3 four members; in 1 son only; in 4 mother only; in 3 husband only; in 3 sister only; in 3 child only; in 3 husband and others; in 1 daughter only; in 25 ten other members; in 1 niece only; in 3 wife only; in 1 a great many; and in 95 not recorded.
How did the disease commence; any scratch or sore on body previous to its appearance? ...	Sores, 54; ulcer, 32; abrasion of skin, 2; scratch, 33; wound, 24; boils, 13; burns, 3; papules, 7; itch, 2; numbness, 1; tumor, 2; eruptions on different parts of the body, 3; running pains in limbs, 1; chilblains, 2; venereal diseases, 2; acne, 1; pimples, 3; nettle-rash 1; impure sexual intercourse, 1; abscess, 1; warts, 2; tubercles, 1; unknown, 36, and not recorded, 14.
Do many people in village or district suffer from a similar disease? ...	In 90 instances, a few; in 71, many; in 64 almost the whole population; in 1 case all; in 9 not one; in 4 unknown; and in 2 not recorded.
To what cause is the disease attributed? ...	125 to contagion; 2 to ulcer; 19 to hereditary predisposition; 21 to unhealthy climate; 2 to chilblains; 1 sore; 8 constitutional; 3 to vitiated blood; 2 to syphilis; 14 to unwholesome food and bad water; 1 to local irritation; 1 to wound; 29 unknown; and 13 not recorded.
Ever suffered from any form of venereal? ...	9 gonorrhœa; 3 hard chancre; 1 gonorrhœa and syphilis; 1 soft chancre; 1 gonorrhœa and bubo; 10 not recorded; and 216 never had any venereal disorder.
Vaccinated or not? Did disease appear before or after vaccination? ...	57 had before, and 134 after the operation was performed; 2 not recorded; and 48 were never vaccinated.
Treatment previous to admission? Was mercury given or not? ...	5 were under European, and 44 under native treatment; 1 had European and native treatment; in 97 cases mercury was administered; 9 had mercury and China root; 6 China root only; 3 unknown; and 76 had no treatment of any kind.

PARANGI DISEASE.

Histories of Cases.

HISTORIES OF PARANGI PATIENTS DRAWN UP BY THE MEDICAL OFFICERS WHO HAD CHARGE OF THE CASES, AND ILLUSTRATED BY A SERIES OF WATER-COLOUR DRAWINGS.

1st Case.—Illustration No. 1. Anuradhapura.

Reported by Mr. G. P. Schokman, M.B.

Sera, aged 5; Sinhalese; belonged to the village of Pandiankadawella, seven miles from Anurádhapura.

Family History:—Father alive; mother died of child-birth four years ago; father had the disease when three years of age; now perfectly well, not even a scar to be seen on any part of his body. Family consists of two: a girl (the elder), eight years old and not affected with the disease yet, and the patient.

The disease first made its appearance about two months ago as a small vesicle on the front of right knee-joint, and from the excessive irritability of the part an ulcer soon resulted, which was followed by eruptions on other parts of body.

The patient is thin, weak, and of a sickly appearance; has a large oval patch on right femoral region, depressed, blackened and smooth in its centre, with several small tubercles at its circumference of the size of a split pea, dusky, flat and smooth, and those at the upper part of its circumference covered over with yellowish crusts; circular ones of the size of a sixpenny piece on the middle of right thigh, and left femoral region nearly flat, but slightly depressed in its centre, covered over also with a yellowish translucent crust. An ulcer situated in the lower part of left arm healing from above, has a similar appearance to the one described in the right femoral region. A small irregular patch on the left cheek, brownish-black in appearance and surrounded by an inflammatory areola; presents a raw appearance on removing a portion of it, with a slight viscid discharge. The inner margins of both feet present an appearance of exfoliation of cuticle and a honey-combed appearance at the under-surface of the great toes involving the deeper tissues, so that great pain is complained of on pressure of the feet against the ground; small pealing off of cuticle over the right thumb and at the web of the middle and ring-finger of the left hand.

2nd Case.—Illustration No. 2. Anuradhapura.

Reported by Mr. G. P. Schokman, M.B.

Tickera, 16 years of age; Sinhalese; belonging to the same village, seven miles from Anurádhapura; by occupation a cultivator, gives the following statement:—

Family History:—Father died of chest affection, thirteen years ago, mother alive about fifty, and in apparent good health. Both parents affected with Parangi in childhood. A large family of eleven, only two surviving—the patient and one elder brother.

When three years of age, large patches of eruptions appeared on various parts of his body, nates and face included, which in the course of a year got well without any treatment whatever. Enjoyed very good health after this, till he was eight years old; when at work in the jungle a small break of the skin on the outer part of right ankle, resulting from the prick of a thorny tree, formed soon into an ulcer which was very intractable to treatment. Three weeks after this he felt severe pains in his limbs, which was followed soon after by the appearance of several indolent tumours, running on to ulceration and leaving behind scars on the lower part of right half of chest, the inner and back of left elbow and the outer part of the gluteal region (right).

Present condition:—Fairly nourished, has two cicatrices in the right infra-mammary region, separated from each other by healthy skin; the outer larger, presenting a reticulated glistening appearance, pigmented, darker in some parts than in others, involving only the skin which can easily be raised from its under-cellular tissue, but rough and extremely uneven on its surface.

A pear-shaped scar on the inner part of left elbow, presenting a glazed appearance with pigmented patches at its lower circumference, contracts the elbow-joint, so that the fore-arm can only be brought to a position midway between semiflexion and full extension; large node on the back of left ulna.

The tissues round the right elbow-joint are considerably thickened, and the lower end of both bones of fore-arm much enlarged, hard and slightly painful on firm pressure.

The anterior surface of both tibias are similarly affected with nodes, and the crest of the left one slightly arching forwards.

Patient is now free from eruptions of any kind, and the pains so commonly complained of in this affection; no history of Syphilis.

3rd Case.—Illustration No. 3 a & b. Mihintalai.

Reported by A. Appavupillai.

Thalla; a male sucking infant of the Sinhalese dhoby class, aged two years. The child is a native of Thariankulam village in Kananthara-kóralé. He was attacked on February last, and he looks robust and sound in health. This is the first attack. This is of the primary form, and is tubercular in character.

He is the only offspring of the parents, who have had the disease in their infancy, but who were entirely free from any trace of it at the time; the child became affected during conception.

The child had simple itch ("hori," as the Sinhalese call it), which was treated in the ordinary way and cured. But two of the eruptions, one on the left toe, and the other at the inner aspect of the knee-joint, did not heal.

Three weeks or so after these eruptions, and particularly the one in the toe, were observed, two eruptions came in the cheek and then others in other situations.

There are none in the village affected with a similar disease. [Although the parents say that there were none in the village with a similar disease, I know of a certainty there were several in the village at the time the child was affected, whom I treated for Parangi.] They are unable to trace how the disease came in; the child never suffered from any form of venereal disease, was never vaccinated; the child lives entirely on its mother's milk (breast); rice is the principal food of the people. No treatment in the way of medicines either internally or locally.

History of the case:—The child is, as already noted, very healthy-looking and of bilious temperament.

The mode of onset of the disease was as follows:—The child had pustular eruptions identical with itch all over the body, which healed under appropriate local treatment. Two of the eruptions, one in the left toe and the other in the right knee-joint, did not heal. The one in the toe enlarged more than the other, which was in the inner aspect of the knee-joint.

The relatives of the child are unable to say which of the two preceded the other, since they observed them (the eruptions) at about the same time, but could only guess that the sore in the left toe preceded.

About twenty days after, two eruptions made their appearance in the cheek, one on either side; no constitutional symptoms preceded, attended, or followed the progress of the eruptions.

(a). The first stage varied greatly as the others did and do; but taking the majority of eruptions, the first stage lasted a few days (from four to fifteen).

(b). The duration of the second stage is also indefinite.

The earliest eruptions, including the original sores, have stood over three months and have not as yet healed, while those that broke out subsequently have some of them healed, and many more are in the course of healing. The disease is likely to stand some five or six months. The tubercles are attended with itching, and marks of scratch are to be found. Every part of the body is thickly covered with the eruptions except the head, part of the hands and soles of the feet, where they are scanty; the eruptions were observed first in the left toe and knee, as already noted, then in the face, then in the buttocks, scrotum, and about the arms.

The patches are of various size and shape, formed by the coalescence of two or more papules or tubercles. Those in the nates and legs are much larger than those in the other localities. Some of them, as in the nates, are oval and elongated, a few circumscribed, while a good many are irregular-shaped. There are papules and tubercles of every size and stage, varying in size from that of a millet seed to that of a tubercle over half an inch in diameter. They commenced in small, round, solitary papules which were white, dry, smooth and glossy. In four or five days they began to enlarge and were attended with itching.

There are more evolutions than one. The papules in the buttocks and back are of very recent date and belong to the sixth or the fifth crop, if it may be called so. In fact there is no order in the succession of these crops of papules, and the eruptions heal at every stage of the disease. The earliest eruptions are much more enlarged than the succeeding crops, and stand much longer without healing. Those of the last crop fade off in the papular stage and seldom run to maturity.

It is not easy to say how the eruptions originated, but, viewing the history of the case as it is, it may not be unlikely that the disease might have been brought by contagion either directly or through some medium. The existence of a mother sore previous to the appearance of the eruptions is evident.

The eruptions are all alike in character and are decidedly tubercular.

There are no ulcers in the literal sense of the word, but there are only tubercles of every shape and size. The largest of the tubercles have, as above noted, a long diameter of over half an inch. The clean surfaces of the tubercles are pale yellowish in colour, hard and indurated in consistence, much raised above the surrounding skin, and attended with a scanty lymphy exudation. They are covered with a very thin scale or crust which takes a long time to peel off. The removal of the scale does not materially diminish or alter

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the size, shape, consistence, and colour of the tubercle. They feel as hard as common warts, and are not sensitive. The scales take a long time to be replaced if the eruptions are not interfered with as by scratching, etc.

No ulcers could be discovered in any part of the body save a few pustules identical in character with ordinary itch.

There is no perceptible difference in the state of the skin except that it is scaly white in colour in some instances. The papules are dry and hard.

The mucous membrane of the mouth and throat are unaffected. The disease has neither implicated the anus, nor has it extended to any internal organ or structure.

The eruptions are confined to the epidermis, and have not gone beyond it and the capillary papillæ. There is no decided areola.

The copper colour of, and the peculiar cachexia that precedes and attends an attack of infantile syphilis, are wanting. The disease is limited, as above noted, to the skin. Unlike syphilitic eruptions, it is remarkably raised above the surrounding skin. It runs its course with scanty exudation of lymph. There has not been the slightest destruction of tissue, neither is it a gangrenous form of inflammation.

4th Case.—Illustration No. 4 b. Mihintalai.

Reported by Mr. A. Appavupillai.

1. Punchiráła, a male sucking infant of the farming class of the Sinhalese race, aged three years.

2. A native of Karadikulam in Kananthara-kóralé. 3. The date of attack was March last. The disease has stood three months or so before inspection, and the child's health is good. 4. This is the first attack. 5. This is the primary form and of the tubercular kind.

6. The family consists of four people including the parents, the infant being the youngest of the lot. The child's elder sister was attacked by the disease at the age of four.

7. The knees were both of them swollen about seven days previous to the appearance of the eruption. The parents are not aware of any scratch or abrasion in the originally affected locality.

8. There was but one infant in the village affected with a similar disease. 9. The disease is usual among infants of the age. They do not know to what cause to attribute the disease.

10. The child never suffered from any form of venereal. 11. Was never vaccinated. 12. Mother's milk and about three or four ounces of rice are the child's diet. 13. The people live on rice since January last.

14. No treatment was had recourse to, and no mercury was ever given to the child.

15. History of the case, &c.—The little patient is fair-looking, is in good health, and of a nervous temperament The child had a small pimple or papule at the posterior aspect of the right knee-joint, which came in seven days after the swelling of the knee-joints. No other symptoms preceded, accompanied, or followed the appearance of the eruptions.

The disease may be divided into three stages for convenience of description: viz., the papular stage; the stage of enlargement or maturity; and the healing stage.

(*a*) The first stage lasts from four to ten days, by which time the papules enlarge and extend.

(*b*) The stage of maturity lasts two months and over; a good many of the eruptions have lasted three months, but have not as yet healed. The disease might stand five or six months, and might even extend to years.

(*c*) The healing stage also varies. It may last two, three, or four weeks.

There was no itching at the commencement, but there is a good deal of it at present, and there are marks of scratching.

The popliteal space and the face are the chief seats of the disease. The parents are not aware of any scratch or excoriation prior to the appearance of the eruptions.

The patch of eruptions in the popliteal space is about one by one-sixth of an inch in size and of a dark colour. The eruptions on the eyebrows, eyelids, and cheeks are of the same colour, and are healing. Some of these are single. The largest patch of eruption is to be seen in the lower lip covering its whole extent and even extending over the upper lip, and is of a pale yellowish colour and semi-circular in shape. The eruptions came in "successive crops," and they are all hard and indurated, alike in appearance, and are tubercular. The patch in the lower lip is tuberculo-vesicular.

The localities of the eruption are the face, buttocks, legs, and shoulders. Their number, size and shape vary. The exudation is lymphy, and the crusts pale yellowish.

The patch in the labial border is moist, not so much from the exudation as from the incessant flow of saliva. Those in the other situations are dry and have a scanty exudation.

The disease is limited to the epidermis, and hardly extends beyond the true skin or *derma*.

The skin where the eruptions are situated is scaly white

There is neither cachexia nor any morbid state of the constitution. The disease is confined to the skin. No other structures are implicated during the progress of the disease. The scars are decidedly black. There is no destruction of tissues, the skin being in a state of hypertrophy, as it were, in the localities of the eruption. The eruptions are much raised above the level of the surrounding skin; those in the lower lip less so.

The disease runs its course attended with very scanty exudation of lymph and heals spontaneously in course of time.

5th Case.—Illustration No. 4 a. Matale.

Reported by Mr. H. A. Moraes.

Janishamy; a Sinhalese lad about eighteen years old; was admitted into the Mátalé hospital on the 9th May, 1879. His occupation is that of a cultivator; he is fairly well built and is of a sanguine temperament; he was born at Galvalla, a village near Mátara, where his parents and relatives are at present living. He states that he has seen several persons in this village who were suffering from Parangi disease in the form of sores on the soles of their feet. Two years ago he suffered from fever, which laid him up for six months; and with the exception of this, his health has been very good. His parents are living, and enjoy good health; they have never suffered from Syphilis or Parangi. He has three brothers and one sister living; these also have not had Parangi or any kind of skin disease. One brother died when he was three years old.

Four months before the late Sinhalese new year he came to Moralavella, a village near or in the Vanni district, on a visit to his uncle. He remained here about three weeks and then went to Gongawella near Matale, where he remained about four weeks. From here he went to another village named Kadavella where he remained seven weeks, and then came into hospital; he travelled from his village very nearly the whole way on foot. Soon after leaving his village, he felt pains in his feet, and the left foot began to swell, the cuticle became thickened and subsequently peeled off. When he arrived at Moralavella his feet were painful, and the cuticle still much thickened. He continued in this state until he went to Kadavella. While here, in addition to the pain, he felt as if "maggots were biting him" in several places on the soles of his feet. This feeling continued for about a month, during which time he was treated by a Sinhalese doctor who "fumigated" the soles of his feet. He states that the skin then "burst" and the "flesh" projected in the places where he felt the "biting" sensation.

On admission into hospital there were several small peculiar-looking sores on the soles of his feet. The largest of these was about half an inch in diameter. They were, for the most part, circular. The edges were sharp and looked as if the thickened cuticle was punched out into holes. In the middle of each of these "holes" was a protuberance which looked like a fungoid growth. It seemed to be composed of a bundle of fibrous tissue close together, and resembled the nap of velvet, but much harder and about one-sixth or one-seventh of an inch long. Under the microscope it presented the characters of fibrous tissue. Between this "growth" and the edge of the sore was a deep sulcus. The "growth" stood out prominently from the surrounding tissue. These sores were very painful. Solid nitrate of silver was applied to them, which removed the pain, and he was given iodide of potassium internally.

6th Case.—Illustration No. 5 a & b. Dambulla.

Reported by Mr. S. B. Perera.

Name, Ukkurala; age, 25; sex, male; occupation, cultivator; description, Sinhalese; birthplace, Palutawa; date of attack, about twenty years ago; duration of disease, twenty years; form of disease, ulceration and sanious discharge from the nose ("Pínas Rógé"—පීනස් රෝගය.

Members of the family affected.—Parents and four brothers and sisters all suffered from Parangi; almost all the inhabitants of the village suffered at one time or another. Never vaccinated. Food, kurakkan especially, and rice now and then.

Patient states that when he was a small child about five years of age, had eruptions of Parangi ("Hamas hori" හමස් හෝරි), preceded by an ulcer on the outer aspect of the upper third of the right leg. He had three successive crops of eruption, with which he suffered for three years. Was free from any disease for about four years, then he began to suffer from pain all over the body, particularly along bones. Several abscesses appeared, and being opened formed into ulcers. Since three years began a sanious discharge from his nostrils, and the bridge of the nose became flattened. Denies ever having had venereal.

At present the patient suffers from sanious discharge from his nostrils. Septum being destroyed, the nose has become quite flattened. On pressure, complains of pain just at the middle part of the nose. On examination, an ulcer could be seen inside of it. Hard palate along the mid-groove ulcerated, and just at the middle to its right side there is a small hole resulting from ulceration. Throat relaxed. When the patient washes his mouth, water comes through the nostrils. In both the legs below knees there are a number

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of ulcers of long standing; they are from six by two inches to a-half by a-quarter in size. Edges raised. Surface covered with minute ruddy granulations. Secretion watery. Surrounding parts indurated. Patient complains of severe pain along bones, especially at nights. Skin dry. No enlargement of any glands in the groins.

7th Case.—Illustration No. 5 c & d. Dambulla.

Reported by Mr. S. B. Perera.

Name, Appurála; age 35; sex, male; description, Sinhalese; occupation, cultivator; birthplace, Bintambura; date of attack, 30 years ago. Duration of disease, 30 years; physical condition weak and cachectic; first attack; form of disease, ulceration and purulent discharge from the nose. "Pínas Rógé"—පීනස රෝගේ.

Members of the family affected: a brother of his suffered from Parangi. Almost all the inhabitants of the village suffered at one time or another; had an ulcer previous to appearance of eruptions; vaccinated; food, kurakkan and rice; had native treatment; was treated with mercury.

Patient states that when he was a child about five years of age, suffered from eruptions of Parangi preceded by an ulcer on the under-side of the lower third of the left leg. About ten years ago he began to suffer from severe pain along bones, and this continued for about six months, when a sanious discharge began from his left nostril ("Pínas Rógé" පීනස රෝගේ) accompanied by very severe pain. About a year after several nodes ("Ẹtapola Rógé" ඇටපොළ රෝගේ) appeared on his body: one on the forehead, two on the left tibia, one on the right tibia, and one on each ulna. These gradually became larger and larger, and softer and softer, till they burst and formed into ulcers. From these the patient suffered for a good long time, and had every sort of available native treatment without the least beneficial result.

At present, the patient has an ulcer on the outer side of the right elbow-joint about 3 by 2 inches in size, half an inch deep in one place where it seems to have communicated with the joint. The ulcer is irregular in shape, edges ragged, surface covered with large flabby granulations, secretion purulent and fetid, surrounding parts indurated; lower extremity of the humerus and the upper extremities of the ulna and radius very much enlarged, giving an unsightly appearance to the elbow joint; left side of the nose ulcerated, and a hole has formed between the bony and the soft part, and there is a fetid purulent discharge continually through this ulcer; throat inside to its right pillar quite ulcerated; complains of severe pain in the nose, and when the patient takes any liquid, a portion of it comes out through the nostrils. Patient complains of severe pain along bones. No enlarged glands about the groins.

8th Case.—Illustration No. 5 e. Dambulla.

Reported by Mr. S. B. Perera.

Name, Tiri Hamy; age, 18; sex, male; occupation, cultivator; description, Sinhalese; birthplace Padeniya; date of attack, about eight years ago; duration of disease, eight years; physical condition, weak and cachectic; form of disease, ulceration.

Any other member of the family affected, yes, four in all. Vaccinated previous to appearance of eruptions, but did not take effect.

Patient states that when he was ten years of age suffered from eruptions of Parangi (පරංගි) preceded by an ulcer on his left leg. These eruptions were cured after about ten months under native treatment. From this time patient began to suffer from ulcers on his legs and elbow joints.

At present there are several cicatrices on his right elbow and some on the left wrist. In both the lower extremities from the knees down to the feet there are numbers of cicatrices. On the lower half of his right leg there are a number of small ulcers, and some on the inner side of the left ankle. One on the latter place is about an inch in length, ½ an inch in breadth, surface smooth and covered with bloody discharge, edges raised, surrounding parts hard, both the tibia enlarged; skin of the patient dry and looks ugly; complains of severe pain along bones; denies ever having had venereal; no enlarged gland about the groins.

9th Case.—Illustration No. 5 f. Dambulla.

Reported by Mr. S. B. Perera.

Name, Menika; age, 60 years; sex, male; occupation, washerman; description, Sinhalese; birthplace, Moragaswewa; date of attack, 55 years ago. Duration of disease, 55 years; formation of disease, ulceration and deformities.

Members of the family affected?—Every one, three in all. Almost all the inhabitants of the village suffered from this disease at one time or another.

A cachectic old patient of bilious temperament, admitted into hospital on the 25th day of May, 1879, suffering from Parangi.

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Patient states that when he was a boy about five years of age suffered from eruptions of Parangi (අළුපරන්ගි) preceded by an ulcer on the inner side of the lower third of his left leg. These were cured in about six months under native treatment, and was free from any disease up to 15 years since. About fifteen years ago was attacked with severe pain along bones and joints, and suffered from it for about eight full years without an appearance of a node or abscess. Just at this time his left ulna and radius got dislocated at the elbow-joint internally and were drawn upwards, the lower extremity of the humerus with articular ligaments being quite destroyed. About a year after an abscess formed on his left leg and resulted in a very large ulcer, and within a few months several abscesses formed in different parts of his body resulting in ulcers. From this time up to date he was never free from ulcers.

At present there is a larger tumor on his left elbow, caused by dislocation of radius and ulna inward and upward, the lower extremity of the humerus destroyed, and the humerus is fully two inches shorter than its fellow of the opposite side. There is a cicatrix on the inner side of the tumor, and a sinus behind communicating with the joint. In the lower part of the left fore arm there is a large cicatrix about three by two inches in size. It is brownish, yellow colour, and puckered up. Power of motion of this extremity is very much impaired. Left knee very much swollen, and there is a sinus communicating with inside of the joint. On the middle third of left leg in its anterior aspect there is an ulcer of six months' standing. It is four by three inches in size, surface covered with flabby granulations, secretion limpid, edges raised and hard, surrounding parts indurated.

Skin of the patient dry; complains of severe pain along bones and especially at nights; denies ever having had Syphilis; no enlarged glands in the groins; no ulceration of throat.

10th Case.—Illustration No. 6. Dambulla.

Reported by Mr. S. B. Perera.

Name, Menika; age, 35; sex, male; description, Sinhalese; occupation, cultivator; birth-place, Emamalawa; date of attack, about 34 years ago; duration of disease, 34 years; physical condition, emaciated cachectic; first attack; form of disease, ulceration and deformities. Parents suffered from Parangi; almost all the inhabitants of the village suffered from the disease. Had no discontinuation of skin previous to appearance of eruptions; never suffered from any venereal; never vaccinated; food, kurakkan and rice; had native treatment, was treated with mercury.

Patient states that when he was an infant had eruptions of Parangi. About 15 years ago, after a severe attack of fever and pain all over, he was bedridden with a number of ulcers formed in different parts of his body. From these he suffered for several years, and had all sorts of native treatment available; when some of the ulcers were healed, some others appeared, and within these 15 years his extremities became a continuous mass of cicatrices. His hands became deformed with loss of flesh, and the joints of fingers anchylosed. Both the feet deformed into *Talipes equino-varus*. Hands near the wrist and legs near the ankles appear like pieces of sticks covered with shining leather.

At present there are a number of ulcers situated on the legs and feet; those of the latter are sinuses communicating with dead pieces of tarsal and metatarsal bones. Ulcers are small, irregular and concave, edges raised, granulations small and very tender, secretion purulent and offensive. Patient complains of severe pain, and is very restless at nights; skin dry; no ulceration in the throat.

11th Case.—Illustration No. 7. Dambulla.

Reported by Mr. S. B. Perera.

Name, Ukkurala; age, 4 years; sex, male; description, Sinhalese; birth-place, Padeniya; date of attack one month ago; duration of disease, one month; first attack, form of disease, eruptions.

Any other members of the family affected?—Both the parents suffered; his elder sister never. Had an ulcer on the inner side of his left ankle previous to appearance of eruptions; vaccinated previously; never had any treatment.

Father of the patient states that about three months since the patient suffered from an ulcer on the inner side of his left ankle caused by an injury he received; about a month ago an eruption appeared on the right side of the base of the neck, and a few days after one about an inch above the left ear, one over the upper part of the posterior side of the left parietal bone, and another on the occipital bone appeared; since two days four on the chin, two on the left cheek, two on the forehead, and two about half an inch in front of the right ear appeared; an eruption on the prepuce of the penis appeared about a week since. Both parents deny to have ever suffered from any venereal.

At present there is a large very unhealthy ulcer on the inner side of the left ankle. It is somewhat larger than a five-cent piece in size, surface raised and irregular, granulations large and flabby, edges hard, secretion purulent and offensive. The ulcer is

surrounded with a halo of bluish dark skin, All the abovementioned eruptions are existing, and those of the base of the neck, scalp, and prepuce are raised, tubercular, round, and about the size of a pea each ; their surfaces are covered with a small scab, and on removing this exposes a part with minute granulations covered with a thin glairy fluid which in a few minutes form into a hard scab. Rest of the eruptions are very small, papules only ; skin of the patient moist and looks normal. Complains of severe pain in his ulcer, but nothing in the eruptions. Appetite good. Sleeps well.

12th Case.—Illustration No. 8. Dambulla.

Reported by Mr. S. B. Perera.

Name, Menicky ; age, 30 ; sex, female ; description, Sinhalese ; birth-place, Padeniya ; date of attack, about 28 years ago ; duration of disease, 28 years.

Physical condition, cachectic ; formation of disease, ulceration and deformities. Any other members of family affected ?—Father suffered from eruptions of Parangi and no ulcers ; mother suffered from both. Has two children, and elder child suffered from eruptions about six years ago. In the village almost all suffered from the disease ; had no abrasion of skin previous to eruptions ; vaccinated, but did not take effect ; ordinary food, kurrakan and rice ; had native treatment, and was treated with mercury.

Patient states that when she was a small child about two years of age had eruptions of Parangi without any discontinuity of skin previously. These were totally cured under native treatment in about eight months, and was free from any complaint up to seven years since. At this period the patient was attacked with severe pain all over the body accompanied by high fever, and in the course of few days several abscesses appeared in upper and lower extremities. These being softened and opened, formed into several large ulcers ; those of the upper extremities healed in about three months under native treatment, without the occurrence of any deformity except that of the right little finger, which, having had an abscess on the outer side of its base, got deformed, the bone being fractured. The ulcer on the lower extremities remained for about five years, causing great destruction to the tissues, and in consequence both the legs and feet got deformed. Since, on the cicatrices of the lower extremities there appeared a number of ulcers ; when some begin to heal some appear. Since three months the patient is unable to walk without the aid of a stick. All throughout these seven years the patient suffered severely from pain along her bones, and consequently her system was reduced a great deal. Denies ever having had venereal.

At present there are five large cicatrices on the left and one on the right upper extremity. They are from 5 by 4 inches to $\frac{1}{2}$ in. by $\frac{1}{4}$ in. in size ; shape irregular and puckered up : colour brownish yellow, and state very dry ; the right little finger deformed, and its power of motion is very much impaired.

On the lower extremities below the knee there are several ulcers formed on the bases of former cicatrices. On the left leg from about an inch below the knee to two inches above ankle there are thirteen small ulcers, all situated on the anterior side, little to its outer aspect, and two on the dorsum of the foot. These are from a cent-piece to half a pea in size, their surfaces concave, edges raised and hard, granulations very small, secretion in some yellowish and in some bloody ; surrounding parts red, shining, and hard. On the right leg from its middle third down to the foot there are about nine small ulcers. Most of them situated on the edges of former cicatrices. One ulcer on the inner aspect of the middle third of the right leg is about $\frac{1}{2}$ in. by 1 in. in size, and the rest are all small, being about half-a-cent-piece in size each. The surface of the large ulcer irregular and covered with flabby granulations and brownish yellow pus ; that of the rest appear as it were excavated ; edges of all raised ; surrounding parts hard.

Left foot is doubled up as it were, and deformed into Talipes equinus. In this foot she is able to move her little toe only at her option. Lower third of the left leg is bent inward, and looks something like a round piece of stick covered with a leather ; whole of the leg covered with cicatrices ; there is one cicatrix above the left knee of about four by three inches in size. Its characters are like those on upper extremities. Second toe of the right foot is deformed, and it appears as it were drawn down backwards or an offshoot from the dorsum of the foot. There is a very tough cicatrix running backwards from the root of this toe. On walking the patient is unable to rest her heel of this foot on the ground, and says that she feels that part shorter. The skin of the patient dry ; no ulceration in throat or soft palate ; complains of pain all over the body. Sleeps well.

13th Case.—Illustration No. 12 a. b. & c. Kurunegala.

Reported by Mr. T. F. Garvin, M. B.

1. Lapayah ; 14, male, Sinhalese, cultivating chenas.
2. Rambawane, Mitualla Mahagalbodda-korale, Kurunégala.
3. Two years ago. Good.
4. Fifth attack.
5. Primary Rupia-like crusts.

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6. His mother and brother have both had Parangi; his younger brother brought it into the family.

7. He had an ulcer on the left outer ankle, and when that healed the eruption appeared.

8. All the people in the village have the disease.

10. No.

11. Vaccinated. Long after.

12. Kurakkan, rice now and again, about a measure a day.

13. The same as above.

14. Was treated four times before in this hospital, and always left nearly well—*i. e.*, with one or two immature eruptions. Yes.

15. The subject of this report, a healthy, well-made Sinhalese boy, about 14 years old, is admitted for the fifth time suffering from Parangi.

The lad is cheerful, bright-eyed, active, and fairly intelligent. He is a docile patient, and fully appreciating the virtue of hospital treatment; takes an active part in his own as well as in the treatment of others similarly affected.

His past history is thus related by him:—

"Our family consists of my mother, younger brother and myself. We live in a village called Rambawane, which consists of about half-a-dozen houses built close to each other. There are about four persons, on an average, residing in each house. Almost all the people are suffering from some form or other of Parangi, but most of them from the kind I have on me.

"There is a tank in this village, the water from which we use for cooking, drinking, &c., and we bathe and wash all our things in it.

"The tank is a large one, and overgrown with reeds. About four years ago my younger brother got a sore on his left shin from scratching. This sore got well in due course, and shortly after he became covered with this kind of eruption. In about eight months he got well, and he is now quite well and strong.

"Next my mother got the disease. (My father died about six years before this, and I recollect being told he also suffered from Parangi.)

"Long after my mother got well I felt an intense itching over my left outer ankle, and scratched it till it bled and formed a sore. The sore was long in healing under native treatment, so I came to this hospital and was cured in about a month and a-half.

"I went away cured, but before long I felt feverish and had pains in my joints. This lasted about fifteen days, and then about half-a-dozen pimples appeared around the cicatrices on my ankle. Then a fresh crop of eruptions came out on my face. I came into hospital and remained two months. I was so much improved that I left again, with but one or two solitary pimples on my body. In a month the eruption came out fresh, and I returned to hospital. This occurred about four times, and I come in now for the fifth time. When I am in my village, I take part in cultivating chenas, growing mostly thanahâl and kurakkan."

His present condition is as follows:—There are three distinct crops of eruptions of the ordinary Rupia-like kind: the oldest on the nates, the next on the arms and legs, and the last on the face. There is a good deal of symmetry in the distribution of the eruption, the patches on the nates particularly. The patches are very irregular-shaped, and the individual eruptions distinct, *i. e.*, separated from each other by healthy skin. On the nates the individual eruptions are largest and most matured. They are nearly circular-shaped, raised by about a-quarter of an inch over the level of the surrounding skin, yellowish-brown in colour, firmly adherent, and in some instances having a subdivided, irregular surface as in a warty growth. The crusts are dead to sensibility. The points of the knife could be driven into them without causing the slightest pain, which is however felt directly the subjacent healthy sore is touched. Some of the eruptions are healing. On removing one or two of the shrunken crusts a healthy sore was reached, the surface of which was irregular from projecting granulations resembling hypertrophied papilla, and very sensitive. The eruptions on other parts present the same appearances, but not so clearly. On the face there are some eruptions just being evolved. The first appearance of the eruptions is as in ordinary acne, but no proper pustule ever forms, nor do they yield comedones on pressure being applied. On the contrary the apex of the papule becomes discolored and rough from desquamation of the epithelium at this point. In the next stage an exudation occurs at the apex of the papule and the whole papule enlarges and becomes more prominent. The eruption here aborts and only desquamation with subsidence of the papule occurs, or a further enlargement ensues, and a true crust of a dirty yellow colour forms by separation of the prominent part of the papule from the healthy skin.

Skin.—Beyond the eruption, the lad complains of nothing. There is no loss of flesh, fever, loss of appetite or malaise. There is a good deal of itching in and around the eruptions. The evolution of the eruption was in three successive crops, with an interval of a week between them. The skin generally is quite healthy, but slightly dry and rough. The lad states distinctly that no person with Parangi touched the initial sore, that when he was in hospital a great many cases of Parangi occupied the same ward as he, and that he never handled a Parangi sore himself.

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Treatment.—The patient was treated with perchloride of mercury internally, and the nitrate of mercury ointment externally. He continued to improve very slowly, but after he was vaccinated there was a marked and rapid improvement in his condition. The patient exhibited all the symptoms of vaccinia, and two excellent vesicles formed at the points of inoculation with lymph. The treatment by mercury was continued during this period and subsequently.

14th Case.—Illustration No. 10. Kurunegala.

Reported by Mr. T. F. Garvin, M.B.

1. Punchimenika ; two years ; female ; Siṇhalese ; nil.
2. Talawitigomuwa, Dewameddi-hatpattu.
3. January, 1879 ; three months ; very good.
4. First.
5. Primary condyloma-like eruptions.
6. Yes ; four. Frst, an elder brother ; then the mother ; then one of the mother's two husbands ; and last, the patient.
7. After the healing of an ulcer on the right leg.
8. No ; only a few people have the disease.
9. Contagion.
10. No.
11. No.
12. Milk, but takes rice and kurakkan.
13. Rice?
14. Nil.
15. The subject of this report is an exceedingly well-made little girl, who looks the very picture of health but for the eruptions on her body. She is the youngest child in a living family of five. She has lost five of her brothers and sisters. According to the mother's statement, these five children died of fever, diarrhœa, etc., and not from any obscure or chronic disease, which first declared itself at or shortly after their birth. The mother has two husbands, who are themselves very closely related, being sons of the same father by different mothers. The mother is a strong and comparatively young woman. The first person who took the disease in the family was an elder brother of the patient. He contracted the disease by frequent association with the children of the adjoining villages who are notoriously Parangi afflicted. He had a different form of eruption, viz., the rupia-like crusts. After six months' treatment with preparations of mercury he got quite well, the last traces of the disease having been eradicated by the treatment he received at this hospital. He is now quite well; and a strong well-made lad. The mother of the patient was the next to contract the disease, and in her case, too, the variety was the rupia eruption. She is now quite well, and an exceedingly fine specimen of a Siṇhalese matron. A few of the pigmented scars are visible here and there on her back. The next in the family was one of two husbands, but whether in his case the eruption was of the rupia-like or condyloma-like kind is not ascertainable. The subject of this report then took the disease, presumably from the father, as he used, while still covered with the eruptions, to carry the child about and feed her off his own plate. The child first made a sore on the outside of the right leg by scratching violently, and it took nearly a month before the sore healed. Directly the sore healed a crop of eruptions appeared on the nates and in the *cleft* between them, then the backs of the thighs, the belly and the face became affected. The evolution of the eruption was preceded for a few days by slight fever and peevishness. This is the history which the mother gives regarding the origin of the disease in her child. She states that she had quite recovered of her attack of Parangi before this child was born—nay even before she was conceived. She states that both her husbands were quite healthy men, that they did not suffer from any venereal disease as long as she knew them, and that she never herself suffered from any such disorder or lost any children by miscarriage or from any venereal disease. When admitted into hospital the child was covered with eruptions of the moist variety. About the middle third of the outer side of the right leg there was a dense reticulated cicatrix, which occupied the site of the initial sore. The eruption appears to have been evolved in three distinct crops, the first on the nates and backs of the thighs, the second on the belly and chest, and the third and latest on the face. The first crop of eruptions was distributed in a nearly symmetrical manner, and consisted of single elevated sores covered with a dirty yellow moist scab. Each individual sore presented a perfectly healthy granulating surface when the scab was removed. The scab was perfectly insensible. It adhered very slightly to the subjacent sore. The next crop of eruptions was on the belly, and presented nearly the same characters as those on the nates described above. On the face there were a few moist eruptions and some acne-like eruptions. There was no induration at the basis of the eruptions.

The general health of the little patient is excellent. Her teeth are well-shaped and firmly set. She cries a good deal owing to the pain produced by the constant friction in the region of the nates. The skin, where unaffected, is perfectly normal and

possesses the usual gloss, feel, and elasticity of healthy skin. The sweat glands work normally. The patient takes her food well, and there has been no appreciable loss of flesh since she contracted the disease.

The patient was first treated with powders containing sublimed sulphur and cream of tartar and a local application of carbolic acid oil, and, as she shewed no signs of improvement, she was ordered calomel and Dover's powder and the local use of dilute citrine ointment. She improved rapidly under this treatment, and most of the eruptions commenced healing over and leaving pigmented cicatrices to mark their site.

When I left Kurunėgala the patient was fast convalescing.

15th Case.—Illustration No. 9 b. Kurunegala.

Reported by Mr. T. F. Garvin, M.B.

1. Punchihamy; 30; female; Sinhalese; engages now and again in paddy and kurakkan cultivation.
2. Doratiyagedara, Hętahaya-kóralé, Kurunėgala District.
3. March, 1878; six months; bad; a very thin, dirty and slovenly woman.
4. First.
5. Primary rupia-like crusts
6. Yes; two: (1) the baby at the breast, (2) the mother, Punchihamy, and (3) the other child.
7. The disease commenced as a sore on the right breast, which the baby, who had the eruption round its mouth, took frequently. The breast was quite sound. There was no fissure or scratch.
8. Yes; a great many. There are fifteen houses in the village, and half of these are infected.
9. Contagion from the child.
10. No.
11. Yes; the disease came long after.
12. Thirty ounces of rice per diem; eats some kurakkan only in the mornings.
13. The same as she takes.
14. Was for thirty days under native treatment, and took "alla baith," but not mercury.
15. The subject of this report is the mother of five children, of which three died shortly after their birth. She has now two children alive—one male, and one female, one about two years old, and the other still at the breast. She is a little spare woman, very thin, dirty and slovenly, and of a nervous temperament. She is about thirty years old, and a Sinhalese, born and bred in Kurunėgala District. Her occupation consists in now and again lending a hand in the cultivation of paddy fields and in taking in crop. She has never had anything the matter with her before. Her husband is a healthy man.

About eight months ago her child, the one at the breast, contracted Parangi from one of his playmates, and the eruption appeared well developed round and about his mouth. The eruption was partly of the rupial and partly of the condylomatous character. The woman, unmindful of the consequences, although she was well aware what they were, permitted the child to take the breast as usual. After a time, a boil, as she calls it, developed about the nipple, broke, discharged matter, and ulcerated. The sore eventually, after a course of native treatment, healed, and its place is now occupied by a large dense cicatrix, which by its contraction has deformed the breast. The boil was so painful that she had to prohibit her child taking that breast since. She took no mercury, but what is known as "alla baith," probably China-root (Smilax China). It took the sore three months to heal over, and directly this was accomplished a crop of eruptions appeared on the face, preceded by slight fever, loss of appetite, malaise and pains in the larger joints for a day or two. When received into hospital, there were a few dark spots in the forehead and back of the neck, and three distinct crops of eruptions on the face, body, and arms and legs. That on the body was of the shortest duration, as no scars were observable there, and as several flesh eruptions were being evolved. The eruption presented the following naked-eye appearances, and was attended with a good deal of tingling and scratching.

There was no method in the distribution of the eruption on the face, body, legs or arms. In some spots the eruptions were confluent, while at others a considerable portion of healthy skin intervened; on the face, where the eruption was oldest, the crusts were quite dry, nearly round in shape, dark-coloured, and easily removable. On the chin there was a very prominent eruption, the crust of which resembled a horny growth. On removing the crust, a healthy sore, the surface of which was red and uneven from prominent granulations, was exposed, and just a drop or so of lymph-like substance exuded and spread over the sore.

On the arms and legs the crusts were of dirty brownish-yellow hue, moist, firmly adhered, and of great density. A few dark-coloured spots were also observed, mostly depressed below the level of the surrounding skin, and irregular in shape. In some instances, continuous with the dark discolored patch, there was a slightly raised yellowish crust

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which, looked at from a slight distance, appeared as if the cuticle were there elevated by purulent matter.

On the back there were no dark spots, but the young eruption, looking like acne roughly handled, diffused in the most irregular manner. Some of the youngest eruptions were no more than simple papules with a little roughening and discoloration of their apices; others were appreciably raised above the surface, and had a moist and yellowish colored apex, as if from desquamation of the epidermis. There were no pustules. The skin generally was dry, rough and somewhat scaly, as in the desquamative stage of measles. There was a considerable amount of dandruff on the head. The body appeared as if dusted over with bran. The skin was rough and dry.

N.B.—In the child, a few crusts existed over its body, and the eruption round the mouth was confluent, irregular-shaped, and crusted over in the greater part of its extent. It looked very like an attack of *Herpes labialis,* which had been roughly handled and had ulcerated and *scabbed.*

The elder of the two children had the eruption in the same stage as the mother, and its appearances were the same. The mother and her children were treated with the local use of dilute citrine ointment rubbed on after bathing in warm water, and the internal use of mercury in the shape of the perchloride. All three were rapidly improving under this treatment.

16th Case.—Illustration No. 1. Kurunegala.

Reported by Mr. T. F. Garvin, M. B.

1. Pakeer Tamby; 48; male; Moor; cultivator.
2. Wallathava, in Vanni Wallathava.
3. About October, 1878; about four months; fair.
4. First.

5*a*. Primary soft eruptions.

6. Yes: (1) his brother, (2) his mother, (3) his child, and (4) himself.
7. From a scratch on the neck.
8. Yes; a great many, nearly all.
9.
10. No.
11. Vaccinated; after.
12. Mostly kurakkan.
13. Ditto.
14. Nil.
15. The subject of this report is a strong made Moorman, born and bred in Vanni district. He is about sixty years of age, and was twice married. His wife gave birth to two children—a girl and a boy—and died. She never had Parangi, and she died of fever. Both the children are quite well, and have never had Parangi. His second wife is still alive. By her he got four children—two girls and two boys. He has had his second wife for more than ten years, and she developed Parangi a few months ago, and after the patient. The last child by the second wife was the first in the family to develop the disease, and it was from her that the patient caught the disease.

About fifteen years ago, one of the patient's brothers got Parangi disease, and three years after that his mother contracted it. Both of these are now quite well, and have not so much as a sore on their bodies. About six or eight months ago the last child of the patient contracted the disease by playing with other Sinhalese children afflicted with the disease, and the eruption that broke out was of the moist condylomatous kind. The child was treated by a vedarála, but is yet not quite free of the disease. When the child had the disease, the patient used to carry her about and feed and attend to her generally. About six months ago, the patient made a sore on the left side of the neck by scratching a pimple which came out there. The sore got well in about fifteen days, though he took no medicine for it. Just as the sore was healing, he got what he considers an attack of fever attended with pain in the large joints and back. This attack went on for about four days and then subsided, but on the third day following he observed the eruption coming out on the right side of the neck first, and then over the body. The eruptions appeared as little pimples which were accompanied by slight pain, but intense itching. Then each individual pimple enlarged and formed an eruption.

There was no marked interval between the appearance of the first and second crop of eruptions, and there were no premonitory symptoms preceding the second crop.

The village Vallathuva, in which the patient resides, is in the Vanni districts. It consists of about twenty houses, each of which accommodates on an average about seven people. The houses are in blocks, three or four houses going to one block. There is always a garden intervening between the blocks. The people freely associate with each other, and are most of them Sinhalese, though there is a pretty large number of Moors also.

The village is a poor one, and the villagers gain their living by chena and paddy cultivation. The staple article of diet is kurakkan, and rice is a luxury they seldom

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enjoy. There is a great deal of Parangi in the village. The villagers have plenty of cattle, and they eat curd made of buffalo milk very freely.

There is a tank in the village which supplies the villagers with water for drinking, cooking, bathing, and washing. There are a few wells, but they are seldom used, as the tank, which is a large one, supplies all their wants.

He has not tasted meat in any form oftener than once in about eighteen months; his usual diet consisting of kurakkan and vegetables. When admitted, the man had two different kinds of eruptions—*i. e.*, the condylomatous, and still another in which each individual eruption seems to heal in one direction and extend in another.

There was one large eruption on the left side of the neck by the side of a dense, pale cicatrix, and another on nearly the corresponding part of the opposite side of the neck. These eruptions were somewhat oval-shaped, the long diameter being parallel with the axis of the neck, distinctly raised above the surface and covered over by a thin dirty yellow scab, which was quite moist and removable, and bearing a striking resemblance to some yellow paint. On wiping off the scab with a piece of cloth, a granulating ulcer was exposed which appeared quite healthy. On the face there were three or four well-marked eruptions; on the forehead, between the eye-brows, there was one eruption which was quite healed towards the right, but which seemed to be extending towards the left; this latter portion looking as if the skin was raised by some matter underneath. On the chin there was a large irregular-shaped eruption from the base of which several healthy hairs stood out. A similar eruption occupied the middle of the upper lip, and a portion of the right wing of the nose.

On the inner side of both upper arms there were four eruptions of the moist kind, and another large one on the posterior edge of the right armpit.

In addition to this, there were several eruptions on the penis and scrotum. In the latter they ran together and formed a large irregular-shaped sore covered with a thin, moist, dirty, yellow scab.

In the cleft between the middle and ring finger of the right hand, there was one eruption which, like the rest, looked more like a condyloma than a rupial crust.

The throat was carefully examined. The fauces and pharynx seemed normal, but at the base of the tongue, among the circumvallate papilla, there were two ulcers exactly like the eruptions on the body.

The treatment in this case consisted of the exhibition of perchloride of mercury internally, and the ointment of nitrate of mercury externally. The patient was fast improving under this treatment.

17th Case.—Illustration No. 9 a. Kurunegala.

Reported by Mr. T. F. Garvin, M. B.

1. Mudiyanse ; 10 ; male ; Sinhalese ; nil.
2. Uhumea.
3. December, 1878 ; two months ; very good.
4. First.
5. Primary rupia-like crusts.
6. No.
7. From a sore. The result of scratching.
8. None at all in the village.
9. —
10. No.
11. Not vaccinated.
12. Rice ; no kurakkan.
13. Ditto.
14. Doubtful.
15. The subject of this report is a healthy young Sinhalese boy, about ten years old. He has three elder brothers, one younger brother and three sisters elder than himself alive. One sister younger than himself died when very young of convulsions. His father died a short time ago, he says, of fever. In his village, Uhumea, there is no case of Parangi, and the adjoining villages are equally free from this disease. The water used for drinking, cooking and other purposes comes from wells, of which there are about three in the village. The village consists of about twenty houses, each of them accommodating about eight persons. There are a great many outsiders who come into the village to trade, but as a rule they are healthy, and in the boy's recollection none of them had Parangi. The food generally used by the villagers is of good quality, and consists of rice and vegetables.

About six months ago, the subject of this report states that he felt an intense itching on the right leg, and that he made a small sore there by scratching. This sore became worse one day by being hurt by some brambles, and it took nearly two months to heal. While the sore was just getting well, a crop of eruptions appeared on the face, and after an interval of a week another crop of eruptions appeared on the legs and body generally. A man named Mudiyanse, a native of Vanni, but a long resident at Uhumea, had a hut built apart from the houses in the village, and the patient kept there under observation for nearly

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two months, and at the expiration of that period sent him here for treatment. This man gave the patient some powder and an infusion made with it. The powder made his mouth sore, but his symptoms were not improved.

The evolution of the eruption was preceded by malaise and pain in the larger joints; but the second crop of eruptions had no premonitory symptoms such as these.

When admitted into hospital, the patient exhibited two distinct crops of eruptions. The first on his face, and the second on his legs. A few typical eruptions were scattered about the back and belly. On the middle of the outerside of the right leg, there was the cicatrix of a sore, as large as a crown-piece. The centre of the cicatrix had the appearance of a patch of morphœa, and the edges were reddish brown in colour. On the face there were several large rupia-like eruptions, three of which, larger than the rest, were situated about the right angle of the mouth. The individual eruptions consisted of a dry, yellowish-brown scab, raised considerably above the surface of the surrounding skin and easily detached from the subjacent sore, which presented a healthy granulating surface. On removing the scab the sore became immediately covered with a thin layer of a substance like lymph which, quickly coagulating, obscured the surface of the sore. The eruptions on the legs presented the same appearances, and were attended by the same phenomena on the removal of the loosely adhering scab. The skin over the body generally seemed a little more dry than natural, but beyond this, there were no unusual appearances noticeable. A careful examination of the throat revealed nothing particular.

The mouth was sore, the gums being tumified and congested as in ordinary mercurial salivation. From what the patient states, it is difficult to ascertain whether a mineral substance was used or not; the presumption being rather the other way, for he distinctly states that a decoction made with the powder was also given him.

There were no digestive, respiratory, or urinary derangements. The urine was alkaline, and passed freely and in average quantity. The appetite was good and the bowels regular. The teeth were models of strength and cleanliness. The eyes were quite healthy,—the conjunctiva being red and vascular, and the cornea clear.

The epiphyses of the humerus were not enlarged, the joints were quite sound, the legs straight and strong, and the muscles well developed.

The head was comparatively small, and the boy rather slow of apprehension, and somewhat stupid.

Treatment and termination.—The boy was put upon calomel and Dover's powder, one and two grains respectively given every fourth hour. In four days the gums became spongy and salivation well marked. The medicine was continued eleven days more at longer intervals, the mouth being frequently washed with alum and chlorate of potash gargle.

The eruptions healed rapidly, and on the 18th April—nineteen days after admission—he was discharged perfectly cured.

The effect of the mercury seemed to be to dry and loosen the scabs, which then fell off or were easily picked off. The subjacent sore in many cases, where the scabs were removed, was found healed and dry, the healing being effected by the extension from the circumference to the centre of a deeply pigmented epidermis. When the boy left the site of the eruption was occupied by black patches.

18th Case.—Illustrations Nos. 13 and 14. Galle.

Reported by Mr. F. A. Vandersmagt.

1. Sadris; twenty-five; male; Sinhalese; labourer.
2. Nugadome, where he now resides—a village close to Galle within two miles.
3. In January last, *i. e.*, about five months prior to admission; patient fairly well built.
4. Second attack.
5. Primary: small papules which are said to have become converted gradually. Secondary: into larger tubercles covered with the characteristic yellowish white discharge of the size and shape as depicted in the engraving No. 13.
6. Both wife and child who were in hospital last year. The child is said to have had it first, wife next, and patient last of all.
7. Had no sore or scratch before the appearance of the disease, which, as stated before, commenced as papules on the right leg.
8. Few at present, scarcely half-a-dozen, but several, including the dhobies, who had it, have now recovered.
9. Contagion.
10. Denies having ever suffered from any form of venereal.
11. Has been vaccinated, both during infancy and after he was grown up. Disease appeared long after re-vaccination.
12. Rice occasionally, jak-fruit, yams; quantity varying from 12 to 30 oz.
13. Same amongst the poor; better classes having rice at least once daily.
14. No treatment at all in the village previous to admission into hospital.

PARANGI DISEASE.

Histories of Cases.

15. This is a well-marked case of Parangi of the so-called moist variety (identical in most respects with the tubercular form of skin disease described as Frambœsia or Yaws by Drs. Bowerbank and Imray of Jamaica) in a well-built young Sinhalese of a sanguineous temperament, aged about 25 years. He is of the Mahabaddé or Cinnamon-peeler caste, and by occupation a labourer.

His general health is fairly good. Besides an occasional attack of fever, does not remember having had anything serious the matter until his getting ill with the present disease which, as stated before, is said to have commenced as papules without being preceded by any constitutional symptoms.

The papules in the case of this patient do not seem to have lasted many days before the cuticle burst, and the eruption assumed the characteristic tubercular form, which on an average lasted from six to eight weeks before they dried. The patient has now been three weeks in hospital, and several of the eruptions on buttocks, abdomen, chest, face, &c., have dried up altogether, and the rest are inclined to heal.

Besides a slight burning sensation occasionally felt in the eruption, they do not seem to cause any uneasiness. Like the other variety (dry) of the disease, it is not auto-inoculable.

The eruptions in this case were, on admission, most marked about the upper and lower extremities. They are said to have commenced in the manner previously described on the right leg and foot, right knee, left leg and foot, knee and buttocks ; next, right arm and hand; next, left arm and hand, face, belly and chest.

The one on the right eye-brow is the largest and most prominent of those on the face ; it is nearly circular in shape, about the size of a half-cent piece, considerably raised above the surrounding skin, rather spongy, and covered with that peculiar yellowish white discharge usually seen in these cases. Those about the two knees, elbows, and hands are more numerous, and some as large as cent-pieces. In other respects they are similar to the one on the face just described. The skin in this case is said not to have been injured in any way before the disease appeared. The area of the disease here about the extremities may be said to be more or less circumscribed ; the eruption appears to have come out in successive crops, and to have originated from contagion. It may be here mentioned that the disease about the soles of the feet is slightly different from that in other parts in the eruption, being less prominent, more diffuse and rather more sensitive ; the patient alludes to them as "Pooppelle." Although there was slight suppuration in this case, there was no actual ulceration, the several tubercles being covered with the characteristic discharge already alluded to, getting less and less prominent and less moist when inclined to heal, and on their healing leaving nothing but dark stains on the skin. This patient's skin presents a healthy appearance, and the mucous membrane of the mouth and fauces nothing abnormal; the tonsils are of a normal size.

From there having been no ulceration, and apparently no loss of substance in this case, there is no reason to believe that any other portion but the external layer of the skin (epidermis) was involved.

From the symptoms, &c., of cases of Parangi like the present, resembling in every respect the West Indian disease Yaws, I do not think we can be wrong in considering it non-syphilitic, but identical with the disease alluded to, or one very closely allied to it.

19th Case.—Illustration No. 15 a & b. Galle.

Reported by Mr. F. A. Vandersmagt.

Baby-hamy ; 18 ; female ; Sinhalese ; unmarried.

Malimbada in the Mátara District, where she is said now to reside.

Had Parangi eruptions during childhood, and the ulceration of left foot with contraction, &c., about ten years ago.

Physical condition rather thin and slightly anæmic.

(*a*.) Primary.—Papular eruptions said to have appeared about legs, &c.; these are said to have become converted into tubercles which, after the second or third attack, are said to have ulcerated.

(*b*.) Secondary.—Ulcers about the lower extremities.

(*c*.) Sequelæ.—Contraction of left foot in the manner depicted in sketch of case No. 3.

Does not remember any other member of her family suffering from either Parangi or ulcers about the extremities similar to those she has had.

Does not remember having had any sore or scratch before the Parangi eruptions made their appearance.

A certain proportion of the people in her village—*i. e.*, about eight or ten—suffer from Parangi just now, and a few others from ulcers about the legs, contractions, &c.; but a large number are said to be diseased in the Mátara district.

The eruptions are attributed to contagion and ulceration, &c., and the patients being in indifferent health and living on indifferent food at the time, they suffer from the second or third attack.

Denies having had Syphilis after she had attained the age of puberty, and there is no evidence of her having suffered from hereditary Syphilis.

Said to have been vaccinated when very young, but has no satisfactory marks. Parangi eruptions said to have appeared years after patient was vaccinated.

Rice very seldom. Jack fruit, yams, sweet potatoes, &c.; quantity varies from 10 to 25 oz.; meat seldom or never, fish occasionally.

Same as above ; the better classes are said to have a meal of rice once daily at least.

Does not remember having had anything besides a few decoctions at the commencement of her illness.

This was a young Sinhalese woman suffering from well-marked contraction of one of her feet—the left—a sequela occasionally following ulceration after an attack of Parangi. She was unmarried, aged about 18. Slightly anæmic, and of the ordinary cultivator caste. When in her village she is said to have occupied herself as women of her caste and position generally do.

Her general health was apparently indifferent. She was rather anæmic, which was due in all probability to her being a native of a village in a malarious part of the district, and where she used occasionally to suffer from attacks of ague. The Parangi eruptions are said to have been preceded by no constitutional symptoms, but when suffering from the ulcers on the legs, &c., she is said to have suffered from severe pains in the joints and bones, and which even now are said to trouble her.

The eruptions in this case seem to have undergone the same change at first as in the other cases that have been reported—with this difference, that those about the legs on the second or third attack terminated in ulceration, and eventually contraction of the left foot, as depicted in the sketch.

In this case the ulcer on the dorsum of the left foot, with the characteristic contraction of the foot itself upwards, and the big and little toes inwards and upwards, was most prominently marked. This particular ulcer is said to have commenced on the inner side of the big toe, to have partially healed and broken out afresh frequently, and to have gradually spread over the dorsum of the foot, and which on shewing appearances of healing resulted in the gradual contraction of the foot that the patient has now been suffering from for several years. The ulcer as it appears at present is not large, is irregular in shape and surrounded with a whitish cicatrix. The patient has besides this, other cicatrices on the same leg (left), and others on the right leg, where she is said to have had ulcers some time ago. Her tibia will also be observed to be arching forwards in the sketch representing her case.

The patient's skin cannot be said to represent a very healthy appearance ; it is rather drier and rougher than natural. On examining her throat, her tonsils are found slightly enlarged.

In conclusion, I may remark that this case fairly represents what is usually seen in persons in the advanced stage of the disease now under investigation.

20th Case.—Illustration No. 16 a & b. Galle.

Reported by Mr. F. A. Vandersmagt.

1. Punchy; 18 ; male ; Sinhalese labourer.

2. Kapugamuwa in the Mâtara district, where he is said to have resided all his life.

3. Apparently some months ago, but nothing of the history of his case could be got from the patient himself, who seems idiotic and with no idea of dates, time, &c. Physically he is in fair condition, although deficient in intellect.

4. Apparently a first attack.

5. Primary ; similar in all respects to the case No. 18, viz., that of Sadris.

6. The patient speaks of the people in the house he was living in having the disease, but is not capable of giving further particulars.

7. The patient points to a scar on left leg where the disease is said to have commenced, apparently as a papule as in other cases, but where the eruption terminated in an ulcer.

8. People in patient's village are said to be suffering from the disease, but he cannot give any idea as to how many are affected.

9. The patient gives no reply to this question, but there could be no doubt that it is contagion.

10. Apparently not.

11. Has marks of vaccination on both arms. Said to have been vaccinated when very young. Disease appeared long after vaccination.

12. The same as the poor of his district. Rice occasionally. Jack, yams, &c., in quantity varying from 15 to 25 oz. daily.

13. Same as above; better classes having a meal of rice daily.

14. Apparently none

15. This is a characteristic case of the same variety of Parangi as that described in No. 18, in a weak-minded, dark young Sinhalese man of about eighteen years of age. He is not nearly as well built as the case already alluded to, but is on the contrary of rather a slender build and slightly anæmic. He is by caste a tom-tom beater, and by occupation a labourer

This patient appears to be in the enjoyment of pretty good health, to possess very fair appetite, and not to have suffered from any serious illness. The present illness, as in the other case, is said to have commenced as a papule on the left leg, and to have undergone the

same changes as the eruption in the other case did, and latterly to have ulcerated and left the scar which the patient points to as the commencement of the disease.

The papules in the case of the patient lasting for a few days appear to have undergone the same changes as those in other characteristic cases do; and on the cuticle bursting and the eruption assuming the peculiar tubercular form, they seem to last from four to eight weeks before drying and disappearing. The patient has been cured of a few of the smaller eruptions since his admission into hospital, and the larger ones shew some tendency to heal.

This patient also complains of a slight burning sensation occasionally in some of the larger eruptions. They are not auto-inoculable.

The disease in this case is said (as previously described) to have commenced as a papule on the left leg, which, after assuming a tubercular form, is said to have terminated in an ulcer, and which on healing left the scar which at this moment is very distinct and nearly as large as a five-cent piece. After having a few more on that leg, a few are said to have made their appearance on the other leg, next on the abdomen and chest, next right hand and arm-pits, and lastly on the face. Those on the face were well-marked and prominent on admission, particularly those on the left side of it, where there were three large ones about as large as a cent-piece each, viz., two on the cheek and one over the eyebrow; they were more or less circular in shape, very much raised above the surrounding skin, and covered with the usual dirty, yellowish-white discharge usual to these cases. The sites of the older eruptions on the different parts of the body are now marked by stains on the skin of a dark hue.

It is difficult, in the case of this patient, to get particulars regarding his disease; but as far as could be ascertained, his skin does not appear to have received any injury before the disease appeared.

The area of the disease here has, to all appearances, been circumscribed; the eruption as in the other cases appears to have come out in successive crops, and the disease to have originated in contagion.

With the exception of the eruption that first appeared, and terminated in ulceration, leaving the cicatrix already described, the rest apparently underwent the same changes as those in other mild cases, and as described in case No. 18. Besides a slight dryness and roughness about this patient's skin, it cannot be said to be unhealthy. The mucous lining of the mouth and fauces presents a normal appearance, but the tonsils are slightly enlarged.

There was no apparent loss of substance in this case anywhere but in the left leg, where the first eruption is said to have made its appearance; here the true skin must have been involved, but in the face and other parts of the body the external layer alone seems to have been concerned.

I am perhaps scarcely in a position to offer any positive opinion, as among which class of cases Parangi should be placed, but I may be pardoned for saying that if the cases similar to those under consideration are to be considered typical of Parangi, they should certainly be placed with the *Yaws* of the West Indies, for the good reason that they resemble that disease in almost every respect.

21st Case.—Illustration No. 17. Galle.

Reported by Mr. F. A. Vandersmagt.

Akoris; 35; male; Sinhalese labourer.

Dikwella in the Tangalla district, of which place he is said to have been a resident all his life.

Said to have been suffering from the ulcers he now has, on the right hand, wrist, left side and loins, for over a year.

Parangi eruptions; he complains of having had three or four times since childhood, and that the last attack is said to have ended in ulceration.

Patient is rather slightly built and anæmic.

Primary.—As papules as in other cases.

Secondary.—Ulceration of the tubercle eruption (which the papules were converted into after the last attack.)

Sequel.—Contraction, as in the instance of the patient's hand.

No other members of his family are said to have had any form of the Parangi disease, but several of his relations who are in the habit of frequenting his house are said to be suffering from ulcers, eruptions, &c.

Said to have had no scratch or sore on the body before the eruptions appeared.

The disease, as stated before, is said to have commenced as papules.

A large number of the villagers (rather more than half of them) are said to be suffering from the disease in all stages. The district is full of cases of Parangi.

As in the other cases, the disease in its primary stage is attributed to contagion, and the ulceration &c., to the bad state of health the patients are in when they are taken ill with the disease. Denies ever having had any form of venereal disease.

Has marks of vaccination on the arms, which operation is said to have been done during his childhood before the Parangi eruptions made their appearance.

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The ordinary food patient is said to have lived upon consisted of rice occasionally jack-fruit, yams, fine grain, &c., meat seldom or never, fish occasionally. The quantity i said to vary from 12 to 25 oz.

Same as above. The better classes are said to be able to afford a meal of ric at least once a day.

Decoctions are said to have been administered in his case in the beginning, but too nothing internally latterly. To the best of his recollection, had no mercury.

This was a case like the last of ulceration over various parts of the body, follow ing the third or fourth attack of the tubercular (moist) variety of Parangi similar to th case just alluded to. There has apparently been so much loss of tissue about the back c the right hand that it has resulted in well-marked contraction as depicted in the sketcl The patient is a middle-aged single man of the Chaliya caste, rather anæmic and thi When in his village, he is said to have carried on a livelihood as a cooly. The genera health of this patient was to all appearance indifferent; besides having anæmia, he is sai to have been subject to occasional attacks of ague. Said to have suffered from no consti tutional symptoms before the eruption appeared, but has been subject to severe pain about the joints, &c., for several years ; in fact, ever since he has had the ulcers.

The Parangi eruptions here appear to have made their appearance and to have unde gone the same changes as in the other cases, and, like the one last reported, ulceration i said to have followed the second or third attack, and to such an extent at the back of th right hand that it has resulted in contraction.

The ulceration about the right hand with contraction upwards is as well marked i this case as the contraction of the foot in the other. The parts that were attacked an where the ulcers have healed are marked by characteristic cicatrices ; there are several suc on the forehead, both legs, shoulders and arms.

The skin of this patient was rather deficient in smoothness and moisture. His throa with the exception of slight enlargement of the tonsils, presented a normal appearance.

Remarks.—Under the head of remarks, I have thought it necessary to make a summar of the four cases already described—not for the purpose of describing them at greater lengt as to their general appearance, as I am certain no words of mine could with greater correctnes represent them than the masterly and life-like productions of the artist engaged by Govern ment—but to dwell on a few points which I have not had the opportunity of doing before

It will be necessary, in the first instance, to compare the disease under consideratio with one to which it bears some resemblance, and which by some is considered to be on and the same ; I allude of course to Syphilis.

It will be observed in the report of the first two cases* of this group that the eruption are described as not auto-inoculable ; the same could be said of other similar cases tha have from time to time come under my observation, and is of some importance I believe as I am by no means certain that the same could be said of those of a syphilitic origin.

In the next place, I shall draw attention to the absence of all severe constitutiona symptoms at the onset of this disease, that are present in Syphilis, viz.: fever, severity o general symptoms, general derangement of the functions, nausea, flying pains, fronta headache, depression of spirits, rise in the temperature, &c.

I shall next allude to the character of the eruptions in this disease as distinguishe from that in Syphilis.

Although to a certain extent similar in a few cases, I believe it will be admitted tha in the latter the papular, pustular, and scaly are what are generally met with, the firs being the most common and considered the type and basis of all syphilitic eruptions Although they are often found associated, the symmetry of distribution and curvilinea character of grouping being considered characteristic in them ; in the disease Parangi, o the other hand, the tubercular or moist variety of eruptions is what is commonly me with, as far as my experience goes, the scaly variety being quite exceptional.

I may next mention that although it is a rule for syphilitic cutaneous affections t occur in connection with various forms of ulceration about the palate and fauces, I hav failed to observe the same in the cases of Parangi that have come under my observatio

Before bringing my remarks to a close, it may be stated with reference to the tw last cases—viz., those of contraction resulting from ulceration following the appearance c the tubercular eruptions—that the ulceration in question does not seem to have been c the usual form after it makes its appearance for the second or third time. If the descriptio of this as given by the patients themselves is correct, it appears to me to be very probabl of a lupoid character, and, from certain peculiarities, that form of it known as *Lupu exedens*. I do not by this statement of mine mean to assert that there is any connectio between the two diseases, but I simply mention it that those in a position to do so, an where these cases of Parangi in advanced stages occur, may by careful observations se us right by supplying the necessary information, viz., whether cases of this disease i advanced stages degenerate into cases of Lupus or not?

With regard to the microscopical appearances of the eruption and blood of the Parang cases, it may be mentioned that there is nothing characteristic. I have failed to observ anything but cells, nuclei and granules.

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* Vide Nos. 18 and 19.

NOTES ON THE PLATES ACCOMPANYING THE REPORT.

Plate No. 1 shews the occasional distribution of the eruption in circles enclosing patches of skin or cicatrix.

On the feet the fungoid excrescences of "Dumas" are seen, and particularly on the third toe of the left foot.

On the palm of the right hand is a single condylomatous eruption with the peculiar yellow crust wiped off.

Plate No. 2 shews the reticulated and pigmented cicatrix, the result of chronic ulcers following on Parangi. The cicatrix has assumed a keloid character.

Plate No. 3 a & b shews front and back view of the same subject. The case is an excellent example of Parangi as it affects children. It shews the disease in its various stages from the papular commencement to the termination in pigmented patches. It shews the circularly disposed eruption, and in the cleft between the buttocks and down the backs of the legs, typical condylomatous eruption. At the back of the right heel are the pigmented patches resulting from the healing of the ulcers. Suspended from the foreskin are horny-looking crusts.

Plate No. 4 a illustrates the variety known as "Dumas." It shews the fungoid growth protruding through cracks in the soles of the feet and separated all round from the cuticle by deep sulci.

Plate No. 4 b shews the confluent form of eruptions, involving nearly the whole lower lip. Near the right angle of the mouth and to the outer side of the right eye are two lupoid eruptions exhibiting the pigmented and healed portion sunk slightly below the skin, and the extending portion yellow and raised above it.

Plate No. 5, a, b, c, & d are illustrations of what is known as "Pínas Rógé," a chronic ozœna. The case to which C. & D. refer had mercury, and suffers from "Eterpala roga," or nodes in various situations. The case to which A. and B. refer, doubtless had mercury, but there is no record made of it, and he suffers from chronic ulcers and severe nocturnal pains in the bones of his legs. These illustrations shew further the destruction of the nose and palate, and refer to cases suffering from the pernicious influence of mercury.

Plate No. 5 e & f shews further results of the use of mercury. In E. a large cicatrix breaking down and ulcerating at spots is shown. In F. anchylosis and enlargement of the elbow and a dense cicatrix are shewn.

Plate No. 6 shews large contractile cicatrices undergoing ulceration at parts and causing deformities of the feet. The case from which the illustration was taken had mercury administered during the eruptive stage of the disease.

Plate No. 7 shews the initial sore of Parangi on the left inner ankle, studded with eruptions. It shews the eruption in the early stage on the face and foreskin.

Plate No. 8 shews cicatrices, contractions and deformities. The case from which the illustration was made had mercury in the eruptive stage.

Plate No. 9 a shews the dark stains left by the eruption after healing.

Plate No. 9 b shews the rupial variety of the eruption and horny scab frequently accompanying it

Plate No. 10 shews the condylomatous variety of eruption disposed nearly symmetrically over the body of a healthy and well-made little girl.

Plate No. 11 shews (not very clearly) the lupoid form of eruption at the root of the nose and the condylomatous variety elsewhere. It also shews the eruption amongst healthy hairs on the skin and upper lip.

Plate No. 12. A capital illustration of the rupial form of eruption, occurring in a well-made and perfectly healthy lad with faultless bones and teeth. To the right of the main figure there is an illustration of the appearance of the subjacent sore after the removal of the scab; and to the left an illustration shewing the way the scab separates from the subjacent sore by the formation of a crack or fissure.

Plate No. 13 shews the eruption on an adult, standing prominently above the surface and covered by the yellowish crust peculiar to the condylomatous kind.

Plate No. 14 shews the rupial and condylomatous eruption occurring in an adult. It shews the color of the scabs in the two cases, and the occasional occurrence of the eruption on the soles of the feet.

Plate No. 15 a & b shews cicatrices, contractions and resulting deformities ascribable to mercury.

Plate No. 16 a & b shews the condylomatous form of eruption covered with the yellowish scab.

Plate No. 17 a & b shews cicatrices and contractions the result of mercury.

Plate No. 18. No history. Keloid-like cicatrix.

PARANGI DISEASE.

PPENDIX A.

Dr. Loos's Report on the Depopulation of the Vanni.

APPENDIX.

A.

REPORT of James Loos, M.D., Colonial Surgeon, "On the Depopulation of the Vanni District."

To the Principal Civil Medical Officer and Inspector-General of Hospitals.

Jaffna, 26th August, 1868.

Adverting to your letter of the 19th February last, informing me that His Excellency the Governor had been pleased to appoint me to report on the subject of the Depopulation of the Vanni District, as recommended by the Irrigation Commission, I have the honor to lay before you the following observations, as the result of an inquiry into the subject.

With the view of carrying out the investigation, I left Jaffna for the District of Mullaittívu on the 9th of March last. The route I took, and the places I visited, will be found in the annexed statement. I returned to Jaffna on the 23rd of the same month. Important duties and the unfavourableness of the season prevented my leaving Jaffna again till the 28th of June last, when I proceeded to Anurádhapura by the Central road, and in returning made a tour of the Mannár Vanni, visiting several villages, the names of which also are given in the annexed statement.

I have received ready co-operation from Mr. Russell, the Government Agent of this Province, who sent orders to the headmen to wait upon me, and give me all the assistance and information in their power. I have also received kind assistance from Messrs. Curgenven and Twynam, the Assistant Agents of Mullaittívu and Mannár. During my journey through the Mannár Vanni, I met Mr. Twynam, who was on circuit through his district, and his personal presence and influence in some of the places was signally useful in facilitating the inquiry.

The objects of the inquiry I gathered from the report of the Irrigation Committee as well as from your letter. The Committee report that depopulation has been going on in the District of Mannár, in the Northern Province, which has led to the "disrepair and abandonment of irrigation works;" that this depopulation is due to frequent outbreaks of cholera, to fever, and "to the prevalence amongst the people, for many years past, of a very fatal disease, reported to be of a syphilitic character;" that, "in reference to the loathsome disease alluded to in the Vanni, no man, woman or child is believed to be free from it;" and they recommend that "a professional inquiry should be instituted into the character and progress of this scourge, with a view to its mitigation."

My attention was therefore directed chiefly to ascertain the nature of the Parangi disease, the complaint referred to, and incidentally to the other causes of depopulation.

That a decline in the population of the Vanni has been going on for an indefinite period, but more markedly within the last fifteen or twenty years, very slight inquiry is sufficient to establish. Cholera has several times, within the last ten years, visited the scattered villages and hamlets of the Vanni, sweeping away many of the inhabitants, and causing a sudden and rapid decrease in the population. Several villages have thus been greatly thinned, and some entirely depopulated, the few who survived having fled panic-stricken from the scene of pestilence. Mallávi, which now has a population of only seven persons, is a striking instance; and Iyan Perumál, another village, has been entirely abandoned. Kompuvaitte Kulam had once sixty-two inhabitants, but the number has dwindled to twenty-three. Some other villages may be mentioned in which the population has declined in an equally striking manner. It is certain that immigration from the coast has had a disastrous influence on the Mannár Vanni; and the introduction of cholera, on each of the occasions that it prevailed there, can be traced to the arrival of immigrants from India.

Another cause tending to the depopulation of the Vanni, and long in operation, is the endemic fever which exists in all seasons of the year, but is more especially prevalent during and after the rains of the north-east monsoon. The fever is usually of the intermittent type, tending, from poverty of living and want of proper treatment, to visceral enlargements and dropsy. Not unfrequently, however, the fever is of a severe form, and more rapid in its course, causing death from affection of the head. I was struck with the number of cases of enlarged spleen I met everywhere, and from which young children were not free. In the villages I visited at the latter period of my journey, I remarked a disproportion in the number of children to the adult population. For instance, in Rámiankulam the number of the inhabitants is sixty-two, of whom twenty-four are women, and only fifteen children. From this circumstance not having been noticed at an earlier period of the inquiry, I am not able to adduce statistics; but after it attracted my attention,

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APPENDIX A.

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I noted down the number of children, and found a similar disproportion in other villages.

Your letter indicates that Parangi disease is the special object of inqniry. I am alive to the difficulty of the investigation, as I am aware that the disease has not been unnoticed by medical men who have at various times practised in this Island, and that they have been perplexed in forming an opinion with regard to its true nature and origin. I am not willing, therefore, to dogmatize on the subject, although I am stating the result of careful observation.

Native medical books contain allusions to the Parangi leda (Parangi disease.) In Marshall's Topography of Ceylon, an account is given of the disease, derived from native sources. In the chapter headed "Notes regarding the Practice of Medicine among the Kandyans," he observes, that it is a complaint mentioned in Kandyan medical works, that "Parangi leda seems to have been originally intended to denominate a new disease, and from the similarity of the sound and other collateral circumstances, it may perhaps be inferred that the term meant Portuguese disease. There is, however, no tradition among the Kandyans respecting the importation of a disease; and the priests assert that Parangi disease is mentioned in the books which were written during the last incarnation of Buddha."

In a copy in my possession of Hoaston's Notes on the Materia Medica, and the Practice of Medicine of the Sinhalese, written in 1822, laid (according to Ainslie's "Materia Indica") before the Literary Society of Ceylon, but never printed, there is an account of the disease as known to native practitioners. Its varieties, symptoms, and treatment, according to the Sinhalese, are detailed by both Marshall and Hoaston, but nothing satisfactory is stated with regard to its nature or probable causes. Marshall says : "The colloquial communications of the Kandyan vedarálas are very unsatisfactory, relating to any part of their profession, but to none more than respecting Parangi leda. They do not speak of it as a specific disease. It may be communicated, they say, by contact with the affected, particularly by using the same vessels, or walking with the same stick, as those who labour under the disease. This is the way in which they commonly account for the propagation of Parangi, although they allow that it arises spontaneously."

This well expresses the sum and substance of the information I have been able to obtain from conversation with native practitioners, Tamil and Sinhalese. Their ideas respecting the origin of the disease are confused. They believe it to be contagious, and that it is frequently acquired by children playing together, by the use of the same domestic utensils, as well as by cohabitation. Another remark made by Dr Marshall also accords with my experience :—"Vedarálas of the highest reputation use the term Parangi in a very general and undefined sense ; except the "Hori" (Scabies) they seem to call every kind of cuticular eruption "Parangi."

I found the same vagueness on the part of those who pointed out to me cases of Parangi, or, as it is more commonly called in this Province, "Kiranti." Affections which would be separately named and classed by European dermatologists are comprehended under the general name of Kiranti or Parangi. The only other skin affections I heard named were Sirangu (itch) and Karappan, also an indefinite class of diseases of the skin of a mild form, apparently papular and vesicular eruptions, from teething in children or from disorder of the digestive organs in adults. The severer and more inveterate forms of skin disease are called Kiranti. Cases of chronic ulcers in the legs were even pointed out as cases of the disease, and two or three appeared to me marked cases of true Leprosy (Elephantiasis Graecorum).

Setting aside the cases which may be easily resolved into well-known forms of skin disease met with everywhere, there is an obscure class of skin diseases, intimately allied and probably having a common origin, prevalent in the interior of Ceylon generally, and more especially in the Vanni. To this class I would restrict the term Parangi. The disease is met with in the maritime parts of the Island, but I am satisfied it is then in a mild and modified form, probably from the aggravating causes not being so fully in operation as they are in the interior. It is met with in both sexes and at all ages ; the one sex is not more liable to it than the other, and it is equally common at all periods of life. The eruptions are either pustular or tubercular, less frequently scaly. The pustules are small, round and scattered, with an elevated scab, as in Rupia. The tubercles are at first hard, but afterwards soften and give exit to pus, and the ulcers formed are apt to become sinuous. These frequently run together, and larger ulcers are formed, which are liable to spread The sores are irregular in shape, in some parts deeper than at other parts, covered more or less with yellowish and dark coloured crusts, the discharge ichorous but not copious. I found several persons with ulcers of this kind on the hips and thighs ; other parts, however, were also the seats of ulceration. Sometimes the ulcers were found healed in the centre, or were healing in one direction while they were spreading in another, so that extensive portions of the surface were found cicatrized while other portions were ulcerated. In children, ulceration was sometimes observed around the lips, and there were many cases of excoriations at the angles of the mouth, sometimes with white discoloration. In one village (Eraperiakulam) a child had a large ulcer on the right nates, excavated, with yellow sloughs, and another child was in a wretched state of emaciation with several ulcers on the body and ulceration of the nostrils. The eruptions on the

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children were pustules or tubercles, the summits of which appeared to have a thin mucous lining from which serum exuded, and some had decidedly mucous tubercles (*Condylomata*) near the anus. In older children and adults, nodes and affections of the bones were common, and obviously connected with the progress of the disease. I met with several young people who had become crippled from this cause and from contraction of the cicatrices of ulcers about the joints. Many also complained of pains in the joints, and it was stated that such pains are often the precursors of the eruptions.

Pustular eruptions were found in all parts of the body, including the face. The most common seats of ulceration were the hips, knees, and elbow-joints; but the dorsum of the foot, the back of the wrist and fingers, fore-arms and legs, were also in many cases ulcerated.

Such are the characteristics of the disease in its aggravated form—a form which, unfortunately, is not rare in the places I visited. Milder cases exist, in which there are few scattered eruptions or circumscribed patches of ulceration. The general health is remarkably unaffected, and there are no signs of constitutional disturbance or great suffering, except in very severe cases. The disease is not viewed as fatal in itself, and from what I have observed it is troublesome and offensive, but does not materially shorten life, except perhaps in the case of very young children.

As many of the already mentioned features of the disease are those of constitutional or tertiary Syphilis, a careful consideration of the whole subject has impressed me with the conviction that the disease itself is of a syphilitic character. The appearance of the pustular eruptions, the affection of the bones (in three cases portions of the palate had been destroyed), the mucous tubercles observed in children, and the syphilitic ulceration, "increasing by one side while the process of healing is slowly taking place on the other," have all served to impress me with this opinion. I have seen several members of the same family affected, and in cases where the parents looked healthy their past history revealed that they had been formerly affected with the complaint, plainly proving a hereditary tendency. There are so few free from it in the Vanni, that it is extremely probable inter-marriage has served, not only to disseminate, but to aggravate the disease. In the Mullaittívu district, the worst villages I visited were inhabited by the lower castes, and the Moors were said to be remarkably exempt from this complaint. In the Mannár Vanni it is said to be most prevalent in the Sinhalese villages bordering on Anurádhapura, but I have seen it equally prevalent, in the Mannár Vanni, in villages inhabited by Moors and Tamils. The people of one Moorish village (Sálampan) traced the introduction of the disease among them to intermarriage with the inhabitants of another Moorish village (Súduventapuló). I have not been able to find the marks of syphilis in new-born infants; but it is not impossible that the taint is gradually imparted to the system of the child by the milk of the mother, and it is said that the disease often makes its first appearance about the third month of infancy.

Parangi appears to me a variety of *Lepra*. Some of the severe cases of Parangi appeared to me to correspond closely to descriptions of *Lepra* (or *Psoriasis*) *inveterata*. I am confirmed in this opinion by what one of our most eminent authorities on diseases of the skin, Erasmus Wilson, says with regard to the origin of Lepra. "The cause of Lepra," says this writer, "is a special poison. I have stated my belief, and I see no reason to change the opinion, that leprous poison is in its essence and origin *syphilitic;* that Lepra is, in fact, a manifestation of the syphilitic poison after transmission through at least one, and probably through several generations."

Another affection of the skin, also said to originate in Syphilis and allied to Lepra, exists in the interior of Ceylon. Marshall ("Medical Topography of the Interior of Ceylon") says:—"I have seen a number of Kandyans suffering under a wide-spreading ulceration of the skin. In the Sinhalese language this complaint is *Aramana-wana*. The disease occurs on all parts of the body, except perhaps the hairy scalp. The outer circle of ulcerous surface extends while not unfrequently the central area is healing. Occasionally while some of the ulcers are healing, other parts of the skin become affected and eventually ulcerate." And again:—"This disease occasionally commits great ravages on the face. The forehead, cheeks, and lips are much liable to it. The nose and eyelids, however, suffer more from an extension of the ulceration than perhaps any other parts of the body. Sometimes the alæ of the nose become tubercular and ulcerated, more frequently they are destroyed by the progressive ulceration, which extends along the floor of the nostrils and destroys the velum pendulum palati."

I have met with cases of this kind, although not many; but an intelligent headman at Anurádhapura informed me that cases of *Aramana-wana* are frequently seen in the interior of that district. This disease is certainly *Lupus*, which Wilson classes with Lepra, remarking: "Numerous observations led me to the conclusion that Lepra originates in the syphilitic poison, the poison being modified by transmission through one or more generations. Lupus in some instances is clearly referrible to the poison of Syphilis; in others it seems to appertain to an affection equally mysterious—namely, Scrofula; and Scrofula, I believe to derive one of its sources from Syphilis."

But while expressing my conviction that Parangi disease is to some extent a form of constitutional or hereditary Syphilis, I believe that other causes have a powerful influence on the development of the symptoms and aggravation of the complaint. It requires little

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observation to satisfy one that the inhabitants of the Vanni are surrounded by the most unhealthy influences. Long periods of drought lead to the use of water, for drinking and other purposes, which would nauseate ordinary stomachs, and to the absolute neglect of personal cleanliness. The bodies and clothes of the people are filthy in the extreme. The huts in which they live are close and confined, and no doubt favour the spread of the disease. Water is obtained from tanks, the area of which is large, but the depth of water small. These tanks not only supply drinking water, but people bathe in them, and herds of buffaloes lie in them during the heat of the day. The water consequently is thick and muddy, full of organic matter, and, if kept for a little time, decomposes and becomes offensive.

Insufficient food, or the use of unwholesome food, is another source of depravation of the blood, which probably plays its part in the production of the disease. The people themselves term several articles of diet ordinarily consumed by them, "Kiranti food:" buffalo milk and curds, the different kinds of fine grain, some species of vegetables, such as kakiri-kái (*Cucumis muricatus*), brinjals (*Solanum melongena*), and other articles, are so designated. *Kurakhan*, which is largely used by the people, is regarded by them as Kiranti. Although I am not able to speak from much experience, I believe there is no reason to doubt the nutritive qualities of kurakkan, but I suspect the people are right in thinking that it is heating, and that it lays the foundation of disorders of the digestive organs and of the skin, a result attributed also to the constant use of oatmeal and other farinaceous food.

In the letter addressed by Mr. Russell, the Government Agent of Jaffna, to Government, and forwarded with your communication for my information, it is ingeniously supposed that Parangi disease bears resemblance to *Pellagra*, a form of affection of the skin which prevails in the south of France, Italy, and Spain. It is not to be doubted that there are points of close resemblance between the two complaints, but there are also some of difference. It would appear that in Pellagra the eruptions are more *scaly* than tubercular or pustular. The constitutional disturbance is greater; there is more disorder of the digestive functions, and mental despondency and greater failure of strength. The cachexia is marked, but not syphilitic. It has also been suggested to me that the disease is *Land scurvy*. There is no doubt that it acknowledges to some extent the causes of scurvy, and is consequently allied to it; but the symptoms of scurvy are wanting. There are no purpuric patches and spots, no tendency to hemorrhage; the gums are not spongy and do not readily bleed, and there is no great langour and debility. I am myself inclined to think that Parangi answers somewhat to descriptions of *Sibbens* or *Sivvens*, which is said to have been once endemic in the south-west of Scotland, but does not now exist, and to other syphiloid diseases which prevail at the present day in Africa and the West Indies. To these, and other forms of skin affection which prevail in different parts of the world among the peasantry or lower classes, Parangi is probably allied. They all most likely arise from the same exciting causes,—insufficient and unwholesome food, bad water, close and confined dwellings, agricultural occupations, and neglect of personal cleanliness : the manifestation of the depraved condition of the system being varied and modified by climate and soil, the physical and moral character of the people, and other circumstances.

Although I have stated that the disease is not fatal, and its influence on health and longevity not very apparent, it is not to be doubted that to those afflicted with it, it is a source of impaired usefulness, extreme discomfort, and a life of wretchedness. Many of the poor people I saw are burdens on their relatives, and some are already the recipients of bounty from the Government. They are likely to be ready victims of other diseases ; and the great extent to which the disease in question is prevalent is a cause of degeneration and slow depopulation. As such, it deserves the earnest attention and consideration of the Government.

In the Mullaittívu District, the severest and most numerous cases were found at Kumul-amunai and Putukkudiyiruppu ; but no village that I visited was entirely free from the disease. I was informed that some very badly-affected villages existed, but they were not lying in my route. In the Mannàr Vanni, I was able, with the assistance of Mr. Twynam, to learn, in some of the smaller villages, the proportion of affected persons to the healthy, by turning out the inhabitants and passing them in review. The following facts were thus ascertained :—

Sinna Tampanai—Population thirty. Fifteen were formerly affected ; two now affected.

Peria Olukkulam—A Sinhalese village ; population thirty-five. Seven persons now affected, but several have marks of former affection.

Suduventapulo—A Moorish village ; population thirty. Ten now affected, and eight with cicatrices and marks of having been formerly affected.

Salamben—A Moorish village. Population thirty; six persons now sick, and nine with marks of former affection.

Nelukkulam—Population thirty-five, of whom twenty had suffered from the disease but only three are at present affected.

Irampaikkulam—Population thirty ; three now affected, but eighteen had the disease.

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Mandukkumindan—Population 100; thirteen now affected; twenty-three had suffered from it.

Iratperiyakulam—Population fifty-five; eleven now affected; forty had the disease, some of whom have marks.

Naddánkandal—Population fifty-six; seventy had the disease, and eight are now affected.

The amount of disease in some other places has been similarly noted down, but the above statements are, perhaps, sufficient to convey an idea of the extent to which it exists. A large number of those who are said to be now well must not be considered to have perfectly recovered, as the sores are liable to break out afresh, especially in the wet weather.

The influence of mercury over the disease is remarkable; under its use the eruptions heal, and the marks of the disease disappear, a circumstance which is, perhaps, an additional proof of its syphilitic character. Marshall says:—

"In regard to the treatment of Parangi, the vedarálas are nearly unanimous. They all recommend the use of mercury. They generally, however, give their simple remedies a trial of two or three months before the administration of mercury is commenced."

The caution these men exercised is lost sight of by their degenerate successors, for I do not hesitate to say that mercury cannot be more frightfully abused than it is by the uneducated native medical practitioners of the present day. Every person affected with the disease I inquired of, acknowledged of having taken "*pat-pam*," which is a compound of mercury, turmeric, camphor, China-root and seyang-koddai. *Seyang-koddai* is the marking nut (*Semicarpus anacardium*), the acrid juice found between the laminæ of the shell of which, according to Ainslie, is considered by the Hindus a valuable remedy in scrofula, venereal and leprous affections. The China-root (*Smilax china*) has acquired much reputation for the cure of Parangi, and is known in the Vanni as Parangi-kilangu, or root. But it is regarded only as an auxiliary remedy, and mercury is principally relied upon. The mode of administering mercury by the native practitioners in this disease appears to me to be most injudicious and hurtful. Pat-pam is given twice daily for seven days. When the mouth is becoming affected, the patient is desired to bathe every morning at sunrise for seven days by way of cooling the system, and low diet is enjoined. It appears to me to admit of question whether the nodes, affection of the bones, and rheumatic pains should not be regarded more as the results of the injudicious administration of mercury than the sequences of the disease itself.

I feel considerable difficulty in proposing adequate measures for the removal or mitigation of what is rightly considered a scourge of the country. The complete eradication of the disease can only, perhaps, be hoped for, from advancement in civilization and the adoption of improved habits of life among the people themselves. Something may be done by Government to mitigate the disorder. The Irrigation Scheme, which is now receiving the attention of Government, is likely not only to advance the material prosperity of the people, but also do much for the removal of the disorder. More abundant supplies of food and pure water cannot but conduce to improvement in health. It is worthy of consideration whether in the present state of matters, the digging of wells and the use of spring water should not be recommended, and some steps taken to prevent the people procuring supplies from dirty and stagnant pools. I am aware that some prejudices will have to be encountered, as I found that tank water was preferred even in the driest seasons. It is also worthy of consideration whether a few tanks in the Vanni should not be at once repaired, and the people encouraged to settle around them, instead of being left to disperse themselves in small communities over the face of the country. They would be less helpless, and sanitary regulations would be better enforced

With greater confidence I would respectfully suggest some means calculated to relieve the sufferers from the disease, the chief of which is the desirableness of placing within the reach of the people more efficient medical assistance than they have at present. Native practitioners reside in some of the villages of the Vanni, but the only medical aid at present obtainable in most places is during the casual visits to them of itinerant pretenders to medical skill Two or three charitable dispensaries will be the greatest boon that can be conferred upon the people, and will, I am sure, be highly appreciated. A hospital at Mullaittivu and another at Vavuniya-Vilánkulam would be centrally situated. The Planters' Society's hospital at Pachchilaippalli might, perhaps, with the consent of the planters, be moved further down the Central road. The Immigrant hospitals at Anurádhapura and on the Mannár road might also be made more available for the treatment of sick natives of the country.

In connection with the establishment of hospitals and dispensaries, I cannot refrain from adding a recommendation, with the advantages of which I have been long and deeply impressed – the adoption of a plan of medical education in the Island itself, for training an efficient class of medical practitioners, who will scatter themselves over the country and displace the present class of ignorant quacks. This good work is, to a certain extent, being carried on among the Tamils of Jaffna by Dr. Green of the American Mission; but I think the benefits of improved medical practice deserve to be extended to other districts of the Island and other classes of the community, and this, in my opinion, can be best accomplished by the establishmen of a Medical School in Colombo.

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B.

REPORT of JOSHUA DANFORTH, M.D., Assistant Colonial Surgeon, Vavuniya Vilánkulam, Northern Province, on the Parangi Disease.

Government Civil Hospital,
6th January, 1873.

IN compliance with your instructions, the Parangi disease prevailing in the Vanni district has been my special study from the 4th June to the 31st December, 1872, and the following brief account of it is respectfully submitted.

It would not be improper, in the first place, to give a short account of the country, the nature of its climate, and the manners of the inhabitants, their diet, and way of life.

It is not my design to give a geographical description of the district, its situation, rivers, villages, and other particulars of a similar nature. I shall only observe that the whole of it is called the Vanni, and is the northernmost portion of the mainland of the Island. It is much higher than the level of the sea. The whole tract, excepting the paddy fields, which are comparatively few, is covered with woods and thickets. There are numerous tanks throughout the district to facilitate paddy cultivation. It is very thinly populated; the population is of a mixed character, consisting of Sinhalese, Tamils, and Moors.

The soil is a clayey loam and very fertile, and, if the people be credited, it would yield a quantity of paddy sufficient for the whole Province, did not the excessive droughts frequently injure the crops.

The fields are not sown until the tanks are filled by the annual rains in October. There are generally two seed times and two harvest times in the year; the former in October and May, and the latter in February and August. Besides paddy, a variety of pease, kurakkan, sesamum, mustard, and many kinds of melons are cultivated.

The country abounds with herds of common cattle and of buffaloes, which furnish the people plentifully with milk and ghee. Fresh fish from the sea cannot be procured, but a good supply of it is found in the tanks.

The air is generally loaded with exhalations from decomposing vegetable matter. The changes of heat and cold are very frequent and sudden. In summer the weather is clear, calm, and hot; but the middle of the day is cooled by refreshing breezes from the south-west, much mitigating the intense heat of the sun. The winter, which comprises the months of October, November, and December, is moist, warm, and unequal, being perfectly serene at times, but cloudy and tempestuous at others. During the winter there are heavy showers of rain: these annual rains are violent, and commonly accompanied with thunder and lightning and squalls of wind from every point of the compass. Dews fall more or less throughout the year; they are heaviest in January and February. The south-west monsoon continues to blow from March to September, when a change occurs, and north-westerly winds commence to prevail. During the changes of monsoon the winds generally become unsteady and boisterous.

The natives of the district are commonly well-built, and they live to as great an age as the inhabitants of other portions of Ceylon: but they are indolent, with depression of mental and bodily vigour; they are very dirty and sparingly clothed; they marry at an early age, and the marriages are commonly consanguinous. Their houses are small and close, and are built beside the fields near the tanks. They subsist chiefly on rice, kurakkan, milk, and curds. Besides these, a great variety of game, vegetables, and herbs are ordinarily consumed. The dressing of the food is very coarse, and differs materially from the methods of other parts of the Province. They generally make two plentiful meals a day. The water used for drinking and cooking is the stagnant water of the tanks, in which various plants and insects die and rot, and herds of buffaloes lie and dung throughout the day.

Parangi-nasal is the most prevalent disease of the country. With a few exceptions, every one in the district has suffered from it at some period or other of his life. The disease, in my opinion, is a peculiar form of Syphilis, degenerating into Leprosy. It is characterized in its early stages by cutaneous eruptions. They are either squamous, tubercular, vesicular, or pustular, according to the state of the constitution; if the general powers are not much lowered, the eruptions are either tubercular or squamous; when debilitated, they are either vesicular or pustular. Not infrequently all the varieties are met with in the same person at the same time, either the one or the other predominating, according to the degree of debility.

Psoriasis is by far the most frequent of these eruptions; it is often associated with fissures of the skin affecting chiefly the palms of the hands and the soles of the feet.

The next in frequency are the tubercles; some of these are small, rounded, hard, and elevated above the level of the skin, developing in small circular groups with healthy skin intervening and forming a sound centre to each patch; while others are large, soft, isolated, and little elevated above the surface. These are generally scattered over the whole surface of the body.

The vesicular and pustular varieties are not of very common occurrence, and are chiefly found in children of a broken constitution.

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Besides these affections of the skin, the bones and joints are often diseased. Nodes form on the bones of the head, the fore-arms, and legs; swelling and pain are also complained of in all the large joints. Not infrequently the bones of the metacarpus and metatarsus are affected. The tibia in many cases arches forward. Circumscribed, hard, indolent tumors, varying in size from that of a pea to that of an arecanut, often form in the sub-cutaneous areolar tissue; these are chiefly met with over the ribs, the hip bones, and in the neighbourhood of joints.

As the disease advances ulceration sets in, the ulcers commencing in the cracks and fissures of Psoriasis, or in the tubercles, pustules, and vesicles. Not infrequently the ulcers originate in boils of a chronic character. The ulcers in many patients are found in all parts of the body, chiefly on the fore-arms and the legs; they are circular with elevated edges, and spread in every direction, destroying deeply the affected parts. The secretion of these ulcers is an unhealthy pus or a mere watery ichor. Not infrequently the ulcers are irregular and foul, spreading on one side and healing on the other.

At last symptoms of a formidable character supervene, and all sorts of deformities ensue. The nose, palate, and the cheeks ulcerate; the nodes terminate in caries; the gobular tumors soften and break; the fingers and toes mortify; the hands and feet lose their sensibility, and pricking pains are often felt in them; the feet enlarge by the thickening of the tissues, and blebs of various sizes form in them and lead to obstinate ulceration.

Simultaneous with the local manifestations of the disease, a peculiar cachexy declares itself, and the patient becomes pale and anxious with depression of spirits. The surface of the body acquires a peculiar clayish color and a glazy appearance; not infrequently it is covered with dry, scaly epidermis. The appetite is impaired; the muscular strength greatly diminished; and the circulation grows languid. The patient complains of pains in the limbs and inability for exertion, and is at last left in a state of extreme exhaustion induced by the weakening discharges, growing debility, and constant pain.

The disease in some cases is developed in infancy, whilst in others the constitutional tendency to it remains dormant until the age of puberty, very rarely to a later period. Some individuals are more or less affected with it during the most part of a long life without experiencing any great inconvenience from it. Commonly, however, one or more of the distressing symptoms already enumerated appear before adult age.

The disease appears to be as frequent in males as it is in females, and not influenced by sex. A cold, humid atmosphere has a prejudicial influence over the disease, aggravating its existing symptoms; and it assumes a certain degree of malignity during the wet weather. The disease is perpetuated by intermarriage.

The disease is hereditary Not infrequently it is acquired by cohabitation, and it is also said that it is generated in children playing together or partaking food with the diseased. Wounds and ordinary ulcers often assume the characters of this disease.

The disease is called into activity by debility. The natives are surrounded on all sides with depressing influences.

1.—Malaria, which is abundant in the air, continually and slowly exercises its deteriorating influence, and depresses the vital energies.

2.—The influence of deprivation is great, and is felt in no small degree by the poorer classes of people.

3.—The mode of living contributes largely to depress the vitality; the food is unwholesome, consisting chiefly of coarse and indigestible articles, and taken more to appease the appetite than for invigorating the constitution; the dress is scanty, and hardly sufficient to protect from the inclemencies of the weather; and the people are extremely filthy and most licentious. All these causes concur in lowering the vitality below that healthy standard, which is a preventive not only of the Parangi disease but also of other diseases. The great influence of deprivation, and its consequent debility in the causation of the disease, is demonstrated by the fact that the poorest classes of the people are more diseased than the most wealthy.

The development and progress of the disease may, to a certain extent, be prevented by well-assorted marriage—that is, marriage of the natives with people from other districts. Intermarriage within a very restricted range has been the practice of the people for many generations, and the whole race is deteriorated. The principle, that crossing the breed is the only way to prevent the stock from deteriorating, and the best means of improving it, may be well applied to the inhabitants of the Vanni district. It is not surprising to see the development of diseases, to which man would otherwise be a stranger, by the intermarrying of persons who have hereditary tendencies to particular forms of disease.

A habitual observance of all hygienic rules is not of less importance. The enjoyment of a pure air; attention to clothing, so as to obviate the injurious influence of atmospheric vicissitudes; a wholesome diet, cleanliness, and avoidance of all excesses, are the means upon which we must mainly base our hopes of arresting the progress of this disease. For the attainment of these means, there must be good thoroughfare roads in the various directions and public markets in different localities, for increased traffic, so as to enable the inhabitants to procure food, clothing, and other necessaries of life without much trouble or expense. The state of their dwellings, which are close and shut up by jungle, should be improved; they must be encouraged either to use spring-water or filter habitually

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through charcoal the water they use ; and, above all, the people should advance in civilization.

In the treatment of the disease, the prominent indication is to support the general energies of the system. For this purpose, the administration of tonics and alteratives, with a nourishing diet, has been found advantageous. The remedies which have been found best calculated to improve the constitutional powers and ameliorate the symptoms of the disease, are cinchona and its preparations, iron, iodine, cod-liver oil, sarsaparilla, mineral acids, and the preparations of potash.

Mercury appears to be of the greatest service in the disease, under cautious management. Many cases have been relieved by the employment of perchloride of mercury in conjunction with iodide of potassium and sarsaparilla. When the influence of mercury is carried to the extent of producing a manifest mercurial action in the system, it accelerates the progress of the disease, and deteriorates the general habit of the body.

Cases.

Of the cases that have come under my notice, several are of the following type :—

Case I.—P. P., a Moor woman, aged twenty years, was admitted July 11, 1872, with Morbus Parangi. She states that her parents were diseased, and that she in her childhood suffered from an eruption which was cured by native medicine. About eight years ago a scaly eruption, covering her whole surface, made its appearance, and was followed by ulcers in different parts of her body, chiefly in the extremities. She was completely crippled by the disease, and native medicines, of which she took a great number, had done her no good. On admission, she was pale, anæmic, and emaciated ; her fore-arms were thin and covered with old scars ; the hands were flexed at the wrists by the contraction of cicatrices. The legs, from the knee downwards, were covered with variously shaped ulcers discharging a sanious fluid ; the bones were exposed and carious in several places ; the feet were benumbed and insensible ; the left foot was much enlarged by the thickening of the tissues. She menstruated at her fourteenth year, and the catamenia have subsequently appeared regularly. Her appetite was good and the bowels open, moving once or twice daily, but her sleep was disturbed by the pricking pains in the legs. She was treated with iodide of potassium and sarsaparilla, and fed with good nourishment to improve the general health. She continued to improve from the date of her admission, and in two months recovered the use of her lower limbs, which had been lost nearly eight years. She was discharged on the 3rd October, much improved.

Case II.—P. K., Tamil, aged eighteen years, was admitted August 27, 1872, with Morbus Parangi. He states that his parents were healthy, and his brothers never suffered from the disease. When he was young he suffered from ulcers, which were cured by the administration of mercury. From that time up to the age of fifteen years he was in the enjoyment of very good health, when the disease declared itself in the form of nodes in his legs, and had crippled him for the last three years. On admission he was pale and emaciated, with an anxious expression of his countenance. The legs were thin and ulcerated, the ulcers exposing carious bone in several places. The feet had lost their sensibility. The fore part of the right foot was much enlarged, and the great toe was flexed and distorted ; the enlarged extremity of the foot was perforated with numerous small openings, which exuded an unhealthy-looking pus. His appetite was good, sleep sound, and the pulse languid. The general surface exhibited a glazy appearance. The patient was at once put upon iodide of potassium and sarsaparilla, with a nourishing diet. He gained health and strength rapidly, and left the hospital on the 8th October, much improved. There is every hope of his wholly recovering the use of his limbs.

The natives suppose the disease to be venereal, depending on their habits, mode of living, &c. They seem to know nothing about its origin or progress. Many attribute it to the influence of evil spirits, witchcraft and charms. Their remedies for it are mercury and China root. These are so administered as to depress the vitality, and to prove worse than the disease. The reputed Tamil medical author, Agastiyar, has in one of his works mentioned Parangi disease to be a variety of Leprosy (" பரங்கியென்றகுட்டம்," Leprosy called Parangi.) His remedy for it is gold.

Allow me to submit thus much on the Parangi disease, which, I venture to suggest, may more appropriately be termed the " Vanni plague."

I regret that I have not as yet learned any indigenous remedy which I can with confidence recommend for this dire scourge. If permitted, I propose to make trials of any roots and herbs which the region may afford, of any promise for the relief of these sufferers, and hope, though faintly, that I may be able to report subsequently something more favourable than I have yet done.

C.

REPORT on Parangi in the District of Kurunégala, by Mr. T. F. Garvin, M.B.

Appendix C.

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The district of Kurunégala is notorious as one of the chief among those afflicted with the terrible scourge of Parangi disease, particularly that portion of it known under the designation of the Vanni.

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The district comprises an area of 2,242 square miles, and possesses a total population of 203,756 souls, most of them Sinhalese, but with a pretty free admixture here and there of the Tamil and Moorish element.

The district is indifferently watered, fairly fertile, the Vanni being the worst off in both these respects, and it is comparatively thinly-peopled, there being an average of 90·8 souls to the square mile. The death-rate, which must be considered only approximative since registration is not as yet of universal application, is very high—*i. e.*, as many as 36 in 1,000; and it is largely influenced by the mortality amongst infants and children, for of a total of 7,821 deaths no less than 3,460 occurred among children.

The people of the district are not affluent; their possessions consist of some ancestral land, and perhaps a few head of cattle; their sole occupation is the cultivation of their lands, and their sole means of sustenance the produce. Where their poverty is great, and where the produce is insufficient for their upkeep, it is bartered for less expensive articles on which to drag on a miserable existence.

The dwellings consist of miserable little thatched huts made of mud and wattle, and so close and dark as to render residence in them a disagreeable experience. The houses are generally over-crowded, and, being built in blocks, admit of the free and easy transit of infectious agents from one into the other.

The people are as a rule uncleanly, and resort to personal ablution only under extraordinary circumstances.

Polygamy and the opposite condition—of two or more men, frequently brothers, living in open concubinage with one woman prevail throughout the district, and more so in those parts farthest from the local centre of civilization—the chief town.

The people are very prolific, but their poverty being great, and the means for the adequate maintenance of their children beyond their reach, many of them yield, before they are many years old, to the wasting diseases generated by lack of nourishment and the too early resort to farinaceous food, a condition of anæmia being generated, which, quickly passing on to diarrhœa and dropsy, becomes the chief factor of the great mortality.

The food of the people consists of various kinds of grain grown by them, and chiefly of rice and kurakkan, the latter being the staple article of diet particularly among the pauperised inhabitants of the Vanni.

Beef in any shape is a luxury beyond the reach of a very great many.

The water used is very bad. It is generally muddy, obtained as a rule from tanks in which it has stagnated, it may be for months, and contains an abundance of organic matter suspended or dissolved. The tanks which furnish the water are utilised also for washing, bathing, &c., and during the warm hours of the day the cattle take refuge in the sparse shades of the trees bordering them, and lie for hours imbedded in the mud or water, passing their excrement in, and yielding the dirt accumulated on their hides to the already sufficiently contaminated water.

Having entered into this, somewhat prolix, it may be, description of the condition of the people and of the district they inhabit, I shall now proceed to describe the disease itself as I have witnessed it in the district.

In the majority of cases a sore, the result of injury or scratching, occurring generally over some bony prominence as the ankle skin, back of elbow, &c., is the initial symptom. The sore itself has no other connection with the disease than that it affords an avenue for the introduction of the virus into the system. It is purely a coincidence. The sore is usually indolent and slow to heal, and when cicatrization has well advanced or has just been completed, certain symptoms occur which are clearly referrible to some systemic disturbance. These symptoms are malaise, loss of appetite, slight fever, headache, and pains in most of the large joints of the body, lasting over a period varying from two to eight days. These symptoms precede only the evolution of the first crop of eruptions, and even in those cases where, in a person considered cured but for a solitary eruption, a fresh evolution takes place, these systemic symptoms are absent. On the subsidence of these symptoms, the characteristic eruption becomes evolved in successive crops over the face, head, and body generally. The eruption occurs also on the tongue and fauces though by no means universally. In some cases the pharynx appears inflamed, the soft palate ulcerated and adherent to the fauces or slightly cleft.

In some instances there seems to be some method in the distribution of the eruption, and in nearly all cases there is some approach to a symmetrical distribution on the opposite halves of the body.

Unlike Herpes, the eruption does not follow the course or distribution of the nerves; but it develops best at the flexures of the joints, and at certain normal folds of the skin as in the groin, nates, &c.

The eruption occurs frequently in patches, irregular in shape and varying in size. Each eruption usually retains its individuality, though in some instances the eruptions are so closely packed as to run into each other and cover considerable surfaces.

As a rule, the eruption occurs first on the face, generally on the chin, and then spreads to the rest of the body.

There are three different kinds of eruptions, one very like ordinary syphilitic Rupia; another like Condylomata; and a third form in which a solution of continuity never results, and in which the epidermis appears raised and the sub-epidermal tissues swollen and discolored in one direction, and slightly depressed, deeply pigmented, and quite healed at another and usually opposite direction.

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The eruption occurs first as papules, and resembles ordinary acne to a striking extent. The papules, however, never really turn into pustules, resembling lichen in this respect. The papules increase in size and prominence, their apices become roughened from desquamation of the epidermal scales, and a thin fluid exudes and, quickly coagulating and mixing with the loose scales, forms the scab. The enlargement of the papule, the roughening of the apex, and the occurrence of the exudation continue till, at last, a line of demarcation or crack occurs at the point of contact of the healthy skin with the diseased, and then the scab appears fully developed, and the eruption well matured. The scab so formed resembles the scab of Rupia to a very great extent, but it is less stratified and cone-shaped. It is dead to sensibility, and a pin may be driven through it without causing any inconvenience till the subjacent sore is reached, when only pain is elicited. The sore resembles a raspberry and, when viewed magnified, the edible portion of the pomegranate. It consists of firm, pinkish granulations of larger size than normal, so arranged as to look like a warty growth The sore is very sensitive, and bleeds when handled at all roughly. It appears to me to be made up of hypertrophied papilla. On being exposed, the surface of the sore becomes quickly covered over with a thin layer of lymph, which coagulates, obscures its surface, dries up to a thin tissne-paper consistence, and becomes the slightly depressed and subsequently pigmented cicatrix. The sore is thus healed in a day or two, but the pigmentation of the cicatrix continues for some little time about ten days. The scab is never reproduced even in eruptions that are not quite mature.

In the variety which resembles Condylomata, the scab is removed, directly it forms, and an ulcer, covered with a dirty yellowish scab of soft consistence, distinctly the result of coagulated pus, forms. This variety generally occurs on surfaces exposed to constant friction, as in the arm-pits, the perineum, and the fissure between the buttocks. They are at first papular, but from rough handling or constant irritation become condyloma-like sores.

The method of healing is the same in this variety as in the rupia-like eruption, viz., by a gradual development of cicatricial tissue, which becomes pigmented till a very dark color is attained. In the third variety healing occurs simply by desquamation of the superficial layers of the epidermis and a fresh development of pigmented cells. The eruption in this variety is peculiar in that it seems to be limited to the uppermost layers of the epidermis, which assume a clouded and yellow colour, and are finally replaced by fresh and healthy cells from the *rete mucosum*.

Although these three different forms of eruptions are so common as to be at once noticed, they appear to me to be simply modifications of the typical rupia-like eruption. The moist condyloma-like eruption is the same as the rupia-like eruption, only that through the constant friction to which the part is exposed the scab is never allowed time to develop, being swept off each time it attains slight prominence.

The third variety differs only in the depth to which morbid action extends, which in this instance appears to be limited to the uppermost layers of epidermal scales.

In all cases the resulting cicatrix is deeply pigmented and slightly depressed for a short time. The pigmentation of the cicatrix continues till the colour assumed is very dark, and the cicatrix retains this colour in some instances for years ; so that by a careful examination of the skin of a person suspected of having had the disease within the above-named period, a fairly correct opinion may be ventured. The eruption appears to me to be the result of inflammation of the upper portions of the skin, attended by an exudation which quickly solidifies, and necrosis of the epidermis varying in depth in different cases.

I have made examinations of sections of the eruptions with the microscope, but, I am sorry to have to confess, with no great result ; the only impression which I have received being that all the morbid action is situated above the papillæ, which appear hypertrophied.

Microscopical examination of the blood gave negative results, and, beyond an excessive corrugation of the walls of the red corpuscles, nothing particular was noted. The relative proportion of white and red corpuscles appeared normal.

There are certain other skin diseases classed by the natives under Parangi, but they are easily identified with those known and described by authorities on the subject. Among the chief of these is what is known as "Dumas," a disease of the soles of the feet and palms of the hand, characterized by deep fissuring, cracking and perforation of the cuticle, so as to give to it a worm-eaten appearance. This appears to me to be an aggravated Psoriasis. It yields to the assiduous employment of cleanliness and some stimulating oleaginous application, such as carbolic oil or creasote ointment. It is exceedingly common among natives who have never been in districts afflicted with Parangi, and who have never been exposed to the risk of contagion. I have seen it very frequently in Sinhalese women residing in and about Colombo. It appears to me to be the result of constant irritation from particles of sand. Again, there are forms of ulceration marked by their great destructiveness and by the resulting cicatrix being very contractile, which are looked upon as the sequelæ of Parangi disease. I have not been able to gather sufficient evidence to lead me to endorse this view ; my investigations seeming rather to lend weight to the view that they are in no way directly connected with the Parangi disease, that they are purely the result of mal-nutrition or struma, and that they occur after Parangi simply as they would follow any debilitating disease.

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There is still another class of cases considered as Parangi, in which the bones suffer. Here the bones become enlarged, nodular, or variously distorted, the distortion being most marked at points which are most exposed to pressure, or which have to support most weight, as for instance the tibia, which as a rule bends so that the convexity is forward. This class of cases is easily referred to Rickets and to Syphilis.

Is the disease hereditary? The answer to this question is No. That a large number of cases occur among the offspring of those previously affected, is true, but this is due more to their exposure to contagion than to any inherent susceptibility or vulnerability they possess. Parangi is certainly not hereditary in the way Syphilis is. I have never seen or heard of a congenital case, though I know of abundant instances in which the disease developed shortly after birth, and was clearly, then, traceable to contagion.

There are, again, several instances of parents distinctly affected giving birth to exceedingly healthy children, and of children contracting the disease and communicating it to their healthy and previously unaffected parents.

The next question which suggests itself is. -Whether the disease is contagious or non-contagious? This question has already incidentally been touched upon, and I have no hesitation in stating that the disease is contagious—*i. e.*, that it requires for its propagation the downright contact of the diseased with the healthy surface. It is not essential to the communicability of the disease that the surface exposed should be broken or excoriated, as the following case so well illustrates. A father and child were admitted suffering from Parangi, the eruption being well out in both, and nearly of the same age and duration. The father stated emphatically that the child developed the disease first, and that he contracted it from the child. The child had one large eruption on the foreskin, and the first eruption on the father occurred on his right side, viz., at the exact spot the child's foreskin would rest against when he was carried about by his father after the fashion of the natives, viz., with the legs of the child encircling the father's waist and crossing themselves over the opposite hip. I might multiply instances of the disease being communicated by contact, but I think the case above detailed so conclusive as to render further proof superfluous.

The disease is not auto-inoculable. Several attempts at auto-inoculation made by me ended in failure, whether the material used was blood or the discharge from an eruption. In one instance a freshly removed scab was left in contact with sound skin for twenty-four hours without any result.

There are several instances in which children have communicated the disease to the breast of the mother, both when the skin was broken and unbroken, but in all cases that I have seen the child communicating the disease has had an eruption on the mouth.

I have known instances in which Parangi was communicated during sexual intercourse, and by long residence among and free intercourse with the sick.

That a new arrival afflicted with the disease in a previously healthy village could spread the disease, is beyond doubt, when the contagious nature of the disease is recognised and considered. I am not personally aware that Parangi has been contracted in a hospital ward. I believe that it is very seldom that the disease is contracted in hospital, though I don't deny that it is perfectly possible. One of the cases I have reported would seem to trace his disease to contagion in a hospital ward. That case states that he came in with a sore, that the sore healed in the hospital, and that after he left and went back to his village, the disease appeared. He confesses to a family history of Parangi, however. It appears to me that this case did really contract the disease in hospital, for the disease appears shortly after the initial sore heals, and immediately after his leaving the hospital. His mother, the last person related to him that had the disease, was quite well for a long time before he came to the hospital to have his sore cured. If it is believed that this case contracted the disease from his mother, we must admit an exceedingly prolonged period of incubation. The result of observation is that the period of incubation is short, about two months the most.

I hold, then, that Parangi disease is not hereditary; that it is contagious; that it is not auto-inoculable; that is, communicable through the broken and unbroken skin alike; that only the virus contained in an eruption is effectual; and that the downright contact of the disease with the healthy tissue is essential to the propagation of the disease.

Parangi runs a definite course in all cases, but treatment modifies it and cuts it short. It has no tendency to spontaneous cure, but, on the contrary, if left to itself, it may persist for years, gradually debilitating the sufferer and rendering his system prone to contract other diseases. Its action on the system in these chronic cases is similar to that exerted by chronic suppurations generally.

It is not a disease of debility. It attacks the half-starved and well-favoured alike. It is infinitely more common among the poor for the simple reason that the inhabitants of the villages most affected are poor. I have had a large number of cases occurring among the well-to-do natives under my treatment.

The disease is not restricted to the Sinhalese only, but it occurs among the Malabars and Moors as well.

If the eruption is once removed entirely by treatment, no recurrence takes place; but if a single eruption exists, the person is not safe, as the disease is sure to recur.

A first attack seems to exhaust the susceptibility of the system, and I am not aware of a single instance of the recurrence of the disease or the accession of a fresh attack in

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one who has been thoroughly cured in whom the treatment has removed every vestige of the eruption.

Although the eruption is loathsome, extensive, and troublesome, it has very little effect upon the general health ; except of course in those cases in which it is exceptionally severe or where it has existed for a considerable period. There are a great many who in their childhood or youth, suffered from the disease, and still lived to a ripe old age.

The disease certainly does not interfere with the ordinary course of pregnancy. Miscarriages and still-births are rare among the people. I have had under treatment some women gone as far as seven months pregnant, who were literally covered with the eruption, but I have never seen a miscarriage among them.

In two cases of Parangi I practised vaccination with the result of inducing genuine cow-pox in both instances, and in one case a slightly marked amelioration of the symptoms. The vesicles ran the usual course, yielded clear lymph and healed perfectly. I did not feel justified in using the lymph so obtained, or the question whether vaccination can communicate the disease or no, might have been settled.

Parangi does not appear to me to be in any way related to Syphilis. It is peculiarly a primary disease, and in all cases there has been an absence of the usual symptoms pointing to syphilitic infection. The appearance of the Parangi eruption is so like syphilitic rupia that the superficial observer would at once consider both diseases similar. Parangi is also in no way connected with Leprosy or Lupus.

The two diseases Parangi most resembles are Ecthyma and Frambœsia. It appears to differ from Ecthyma in its chronicity, in the eruption being tubercular rather than pustular, in the scab not being reproduced, in the resulting ulcer being generally healthy and quickly healed, and in the comparatively slight extent to which the system is affected.

Parangi resembles Frambœsia to a very great extent. I have never seen the latter disease, but the excellent descriptions of it in Drs. Tilbury Fox and Farquharson's book seem to me to give a fair idea of Parangi disease too. The eruption of Parangi is not exactly like that of Frambœsia, but resembles it to a great extent, particularly the moist form described above. It appears to me that Parangi and Yaws are identical, and that the differences observed in the two diseases may be the result of the differences in the climate and in the surroundings of the people. The treatment seems to be the same in both diseases.

It has been the custom among the native doctors or vedarálas, for ages, to treat Parangi with mercury and with China root (*Smilax china.*) They use fumigation with vermillion very extensively for the drying up of the scabs, and after that they combine arsenic with vermillion in the fumigation. Mercury is always an important ingredient of the thousand and one specifics for this disease used by the natives. The treatment which has yielded the best result in hospital practice is calomel and opium given till the gums are touched, then suspended temporarily and resumed, and equal parts of citrine ointment and oil well rubbed in after a bath and after the removal of the scabs. I think iodide of potassium given with mercury lessens to a great extent the efficacy of the latter, probably by causing its elimination before it has had time to exert its beneficial effects. I have used sulphur and cream of tartar in some instances, but I have not been able to trace any good effects of them. The combination seems to do children some good by acting as a slight laxative and alterative. As a local application I have frequently used solid nitrate of silver, particularly in those obstinate and painful eruptions occurring on the sole of the foot. When the ulcers resulting from the eruptions are slow to heal, I have obtained good results from the local application of cod-liver oil.

As I have stated elsewhere, the disease is perfectly amenable to treatment. The duration varies to a great extent—from two months to as many years. It usually runs a chronic course. The moist form or the condyloma-like form of eruption takes longer to cure than the rupia-like form.

Regarding prophylactic measures, I am of opinion, considering the highly contagious nature of the disease, that nothing short of perfect isolation of the sick can be effectual. The principle is recognised by the natives themselves, and they invariably make an attempt at enforcing it, but, as a rule, unsuccessfully, as the spread—uninterrupted spread—of the disease testifies

I am not in a position to state the causation of the disease, but I have little doubt that the insanitary state of the dwellings, the miserable food, and the execrable water, do largely influence its prevalence and extension. The etiological significance of these circumstances must be my excuse for the somewhat lengthy introduction of this paper.

There are some interesting and important points in connection with this disease, such as the communicability of the disease to the lower animals, and by vaccination, &c., which I have not been able to study as yet, but which I hope to make the subject of a future paper.

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D.

REPORT of J. ATTYGALLE, M.B., Assistant Colonial Surgeon, on the District of Anurádhapura and on Parangi Disease.

ANURÁDHAPURA, formerly the seat of an Assistant Agency, is the chief town of th newly-created North-Central Province of Ceylon, and is resided in by the Agent and othe chief officials. It is situated at about midway between Puttalam and Trincomalee, an 85 miles to the north of Kandy. Its height above sea-level is 312 feet, and about half-a mile square in extent at the present day. In former times, Anurádhapura was the chie capital of Ceylon, and kings reigned there successively from about B. C. 400, when i was founded by King Pandukalhaya up to the 14th century of the present era. At tha time it was one of the largest cities in the East, if not in the whole world, and is said t have been no less than 16 miles square in extent, streets paved and adorned with shops o merchants from all parts of the world, including the famous Sabaan merchants of Persia who took myrrh and other kindred objects to ancient Rome. Owing to frequent inroad of the Malabar invaders and other causes, Anurádhapura was abandoned by the Sinhales kings as a seat of Government latterly, and it gradually went to utter ruin : and a fe years ago it was reduced to a very insignificant place, with a few boutiques and th residences of about half-a-dozen Government officers surrounded by thick jungle. Sinc it became the seat of an Agency, a great change for the better has taken place. Th whole place is cleared of the jungle, new boutiques are springing up on every side, severa new roads are being constructed by Government, and a large number of highly finishe houses built for the occupation of the increased staff of the Government officers, all o which add not a little to the beauty of the town ; whilst the numerous remains of ancien buildings and magnificent works of stone sculpture make it one of great interest t archæologists and visitors.

The whole Province is about 4,532 square miles in extent, and is a dry, flat country with hardly any hills of any consequence, save perhaps a few hillocks like those to be see at Mihintalé on the North-Central road. The soil appears to be partly sandy and partl clayey, very fertile for paddy cultivation, which was the chief industry of the country i former times, and carried on to such an extent as to have earned for it the name o "Granary of Ceylon." In those days the country was irrigated by a most perfect syste of village tanks connected with one another by channels and supplemented by such larg works as Kalawewa and Minneriya. But all this has been long changed from the utte disrepair into which the tanks and other irrigation works in the district fell in the tim of the late Sinhalese kings and early years of British Government. The fields wer abandoned by people, and the tanks which irrigated them are converted into thick fores land, and the greater part of the whole province may be now said to be one vast wilder ness, only interspersed by a few villages here and there and inhabited by a poverty-stricke and sickly people, though once the abode of a teeming and thriving population. However it is satisfactory to observe that during the last few years a different and a very libera policy is adopted by Government towards this province, and already a good number of th village tanks have been repaired under its auspices, besides the restoration of severa large irrigation tanks such as Madawachchi. The roads, too, have been vastly improved fo traffic, and altogether, if matters go on as at present, the district, though perhaps it might not attain the same pre-eminence which it enjoyed in its palmy days of old, bids fair t become one of the most important and prosperous provinces in Ceylon at no distant date

The productions of the district are fine grain (kurakkan) and paddy, but of late years owing to the restrictions very properly placed on the cultivation of the former by Government and the scarcity of rain for the latter, both these have been produced in very limite quantities ; but with the repair of village tanks, and the unusual and heavy rains which fell throughout the district this year, a great impetus is likely to be given for the cultivation of this cereal ; and the next few years, it is believed by many, will be those of plenty and the commencement of a new era of prosperity. As animal products of the district, may be mentioned skins and horns (especially deer and elk), and a large quantity of them is yearly carried away by traders, chiefly Moormen. There are no rivers of importance passing through this province. There are several streams or rivulets, of which the principal ones are Kalá-oya and Malwatu-oya. The former forms the south-western boundary of the province, and the latter traverses from east to west for some distance, and then taking a long north-westerly course and passing about a mile from the town of Anurádhapura on the east, it empties itself into the sea near Arippu on the west coast. There are several roads traversing the province in all directions, and most of them are passable for wheel traffic. Of these, however, the most important ones are Puttalam and Trincomalee road which traverses the district from east to west, passing through Anurádhapura and the North-Central road, which forms a portion of the main road from Jaffna to Kandy. This passes through Mihintalé, which is situated about eight miles from Anurádhapura, and is the great immigration route for all coolies coming to the Island from the northern parts of Ceylon. There are seven halting stations on this road in this Province for immigrants, all of which are placed in charge of medical practitioners, and provided with good and permanent bungalows and hospitals for the convenience of these people, with a regular staff of servants to attend to their wants.

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Population.—The population of the whole Province according to the census of 1871 is as follows :—

Anurádhapura	...	702
Nuwaragam-paláta	...	20,403
Kuralu-paláta	...	28,273
Kalagam-paláta	...	4,504
Tamankaduwa	...	4,768
Total		58,650

Since then there has been no appreciable increase in the indigenous population, but the number of temporary residents have been vastly increased, especially in the town and its environs by the influx of a large body of Malabar coolies and low-country Sinhalese in search of employment. The chief means of living of the people at large is manual labour, either as cultivators or employés of the numerous public works carried on by Government in the Province. Water used by the people, though abundant and of pretty good quality in rainy weather, is very scarce and very unwholesome during dry weather. It is chiefly taken from tanks, which in some seasons of the year are reduced to mere muddy puddles, and that being the only available source of water in many instances, is shared alike by man and beast.

Habitations of the people are generally very simple, primitive in style, and clustered together as a rule in the same compound, either adjoining each other or at very close distances, and built with an utter disregard of all sanitary rules. They are covered with straw and dried grass, and usually composed of a single room and a narrow open pilá (outer verandah) in front. The houses are raised about a foot or two above surrounding ground. The rooms are entered by a simple doorway and without windows or openings of any kind, either to admit light or air, and are quite dark even at midday.

The food of the people in the rural districts consists principally of fine grain (kurakkan), maize and yams. In seasons of scarcity many live for days on edible jungle leaves and roots, and, except very well-to-do classes, none even taste rice. In fact, they are so habituated to live on fine grain, it is not at all uncommon to find even when they get paddy, to barter it for the other. Tyre and dried meat are frequently eaten with fine grain, and at certain seasons when the tanks begin to dry they indulge in tank fish to an inordinate extent, which not unfrequently gives rise to those outbreaks of cholera reported from the villages, and are often no more than acute diarrhœa brought on by unwholesome and indigestible food. Fine grain (kurakkan) itself, though said to be richer in nitrogenous elements than rice, does not appear to me by any means to be a wholesome food, and the equally bad water which the people use, are the chief causes of the diseases prevalent among them, viz., Parangi and malarious fever.

The climate of the Province is alternately hot and fairly temperate, according to the seasons of the year, whether dry or wet, respectively. During the hot seasons, which are from January to April, June and September, the heat is very unbearable, and has a very depressing effect on all constitutions. It appears to be unsuited to persons of bilious temperament among the Europeans in particular.

The weather during the year 1877 may be said to have been exceptionally hot and wet, as will appear presently. It commenced dry in January after slight rains in December preceding, and there was no rain at all save a passing slight shower occasionally till the end of April, when, with the change of the monsoon wet weather set in. This lasted till the end of May, and during that time there were many heavy showers accompanied with much thunder and lightning. From June till the end of September, for full four months, it was one continued drought, and there was hardly any rain worth noticing fallen throughout the Province During this period nearly all the tanks and streams in the district became quite dry, and even the Malwatu-oya, which was never known to have dried up at Ellakkattuwa, failed to give water, and only a little collected in the newly-repaired tank Bassawakkulam by the April rains saved the people from utter deprivation of it for their wants. In the villages many cattle died, and the agricultural industries of the district were almost wholly paralysed. From October to the close of the year the weather was very wet. It rained heavily throughout the Province, all the tanks and streams and oyas filled to overflowing, and in many instances were attended with heavy floods for days together. It is said that such rains never occurred in this Province within the memory of the oldest living man, and those village tanks and other irrigation works lately constructed under the auspices of Government stood in good need, and proved to be of immense service to the people to store up water for the cultivation of their paddy fields.

(For range of Barometer, &c., vide Meteorological Table in annual return of sick.)

General Health.—The chief diseases which prevail in the district (endemically) are Fever and Parangi. The former is to be met with at all seasons of the year, but it generally assumes an epidemic form during wet weather, and immediately after it. It is usually of an intermittent nature, and in the majority of cases assumes a tertian type, and proves sometimes very obstinate of cure, though as a rule it readily yields to quinine and arsenic. This year it prevailed to a considerable extent from October to December, both among the town residents and villagers in the distant parts of the Province. Fever powders

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were distributed to them with much benefit, and I believe very few deaths occurred from the disease. This disease is caused by the malaria emanating from the marshy tanks, which abounds all over the Province, as well as from the vast forest and low scrubby jungle which cover almost the entire surface of the country. The miasmatic poison may affect the system either through the air which the people inhale or the water they drink, both of which no doubt must be highly impregnated with it under such circumstances. If the disease continues for a long time, and the sufferers are subjected to frequent attacks, it leads to visceral enlargements especially of the liver and spleen. This latter organ is so increased in size at times as to occupy nearly the whole abdominal cavity, and defective circulation brings on dropsy accompanied with a more or less anæmic state of the system, and ultimately results in death.

Parangi is a disease very common among the rural population of this district. Its history is imperfectly known, but from the absence of any mention of it in any of the early Sinhalese medical books, its appearance among the people evidently is comparatively of a very recent date.

The name Parangi has been probably given to the disease from the belief that it was first introduced into Ceylon by the Portuguese, but there is no direct proof of it, and further improbable for many reasons, the chief of which is that any such disease has been entirely unknown in Europe, though it was ingeniously supposed by a late Government Agent of the Northern Province, as Dr. Loos very properly remarks in his able and instructive report on the depopulation of Vanni, that it bore a resemblance to *Pellagra*, a form of skin disease which prevailed in France, Italy, and Spain. It is possible that the disease came to the notice of the people in a marked manner about the time the Portuguese landed in Ceylon; which might have given rise to the belief referred to above, viz., it having been brought there by them. Its true nature I believe is yet undetermined by the profession. As far as my own observation goes, it appears to me to be a disease *sui generis* much allied to and having characteristics in common with Syphilis, and which has induced some medical men to view it as a form of that disease akin to its tertiary type. But there are certain peculiarities in Parangi having no analogy with Syphilis whatever, that I think it is therefore entitled to a separate place in our Nosology.

The disease attacks both the sexes of all classes and ages without distinction. It is highly contagious, and not unfrequently communicated by cohabitation, and also said to be transmitted hereditarily. But this latter point is however to my mind not fully established, and it seems to me that it is propagated from parent to children either by contagion, or developed *de novo* by the very same causes which give rise to it in the former, rather than inheriting it in a manner similar to congenital Syphilis. That this seems to be probable is borne out by the fact that the disease seldom or never manifests itself before the children are weaned and they are two or three years of age. And as an additional reason for considering the hereditary nature of the disease in the general acceptation of the term as being open to question, I may mention the case of a girl—though a solitary one—who was born of undoubted Parangi parents, but removed when near about to be weaned to a part of the country where the disease was quite unknown, and brought up under different circumstances, remaining, though now a grown-up woman, perfectly healthy and free from the slightest trace of it. There is no doubt as to its contagiousness, and even at the present moment there is a boy under my treatment whose case fully establishes it. He is about ten years of age, born of healthy parents (pioneers in the employ of the Public Works Department) who never had the disease, and himself enjoying perfect health till a few months ago, when he happened to mix himself at play with another boy of his own age who was suffering with the disease at the time. The disease broke out in the early and eruptive form, and he is now almost recovered by a course of mercury in combination with iodide of potassium. The villagers are fully aware of the highly contagious nature of the disease, and whenever a case occurs among them, it is usually isolated in a separate hut, and those who have not had the disease are prohibited from any communication with the affected person. This practice I have not observed in this province as much as in Kolonná-kóralé in Sabaragamuwa District.

The usual period in life of the first appearance of the disease is from the second or third year to the age of puberty. It then appears in an eruptive form, the eruptions being hard, knotty and raised above the surrounding skin, and often cluster together, sometimes exhibiting large patches. They vary in size from a pea to a walnut, more or less, seldom ulcerate, and discharge a thin ichor. The eruptions are to be seen most about the hips, thighs, back, elbows, and between the nates, last for about six months and disappear, leaving the patient apparently well, whether by itself or through any of the remedies which the natives employ in these cases I have not been able to determine : but when such cases are treated in hospital they generally recover in a much shorter period. After this many persons remain without any inconvenience from the disease all their life-time, but they shew a peculiarity of appearance and complain of pain in the joints and bones. In a great number of cases, however, especially if the general health becomes vitiated, nodes form in the bones, indolent abscesses form over them, and the latter ultimately result in open ulcers. These ulcers are peculiar, their edges irregular, have a dead pale look, and discharge an ichorous fluid. They cicatrize in some parts whilst breaking up and extending in others, so that frequently the whole extent of a limb is affected in this

manner. These ulcers are almost invariably accompanied with what the patients call "running pains," which are more severely felt at night than in the daytime, and are often of a most excruciating character. They are described as falling into the ulcer, and when this happens a marked change in the appearance of the latter takes place. The ulcers which are cicatrizing become very irritable and painful, granulations assume a pale flabby aspect, and in some instances shew a tendency to bleed, and the cicatrices which had been formed break up. As the disease advances, to quote the words of my late lamented predecessor here, Dr. Danforth, "symptoms of a formidable nature set in, and all sorts of deformities occur. The nose, palate, and cheeks ulcerate, the nodes terminate in caries, the globular sub-cutaneous tumors soften and break, the fingers and toes mortify, the hands and feet lose their sensibility, while pricking pains are often felt in them, the feet enlarge by the thickening of the tissues, and blebs of various sizes form on them and lead to obstinate ulceration. The general health has of course, ere this become deeply affected. The surface of the body acquires a peculiar clayish color, and a glazy appearance; not unfrequently it is covered with dry scaly epidermis. At length the poor sufferer either sinks from exhaustion, worn out by the pain and discharge, or cut off by diarrhœa or some attack of pulmonary disease."

A mild but very common form of the disease is that known as *Dumas*, that is, the formation of rhagades or fissures round the heels, and the disintegration of the plantar-fascia, giving a honey-comb appearance to the soles of the feet. This is attended with subacute inflammation, and the patients suffer much inconvenience from it, in that it incapacitates them from walking barefooted as they are wont. It is very difficult to cure, and requires a long course of treatment to obtain any beneficial result.

The etiology of the disease is much involved in obscurity, but so far as I have been able to form an opinion of it, the chief if not the sole cause of its development is a cachectic state of the system resulting from the unwholesome food and water which the people in the Parangi-affected villages habitually indulge in, and perhaps to a certain extent aided by the impure air they inhale and the unsanitary habitations in which they live. The disease often remains dormant after its first appearance in young age, as already stated, for an indefinite time, and is called into activity by wounds, ulcers, debility, and occasionally, I have reason to think, by vaccination. There is no question that the unwholesome food and water play an important part in its development, and that is unmistakably shewn by those cases who recover under hospital treatment. In the case of many of them the good effects of the treatment last only so long as they have the means of procuring wholesome food and water, and it is a very common occurrence to see a relapse in patients who return to their respective villages after recovery, and place themselves under the influence of the same conditions which gave rise to the disease in them originally, and come back to hospital for treatment for the second or third time.

It is a curious fact worthy of mention, in considering the etiology of this disease, that wherever it prevails in Ceylon to an inordinate extent, the staple article of food of the people invariably is *kurakkan,* and it is perhaps deserving of enquiry, whether it could be caused in a manner similar to a form of gangrene said to be produced in some parts of the Continent of Europe by the use of diseased rye as an article of dietary, although in some parts of India, where it is largely used by the people as their habitual food, such disease is said to be entirely unknown.

The chief indication in the treatment of Parangi is the improvement of the general health of the patient by a generous and a well-regulated diet. Remedies, though subordinate to it, are of utmost importance in many cases, and the most useful of them are mercury, Iodide of potassium, sarsaparilla, and China root (*Smilax china*) given internally, and ordinary dressings of poultices, carbolic oil, &c., as suited to particular cases.

The preparation of mercury generally used is the perchloride or the corrosive sublimate, and it is often given in conjunction with iodide of potassium, which it then forms an iodide. It is not adapted to all cases, but to a limited class only, such as the early stage of the disease in the eruptive form which occurs in young age. Iodide of potassium is our sheet anchor in this disease, and is given in all stages of the disease with much benefit, and is a remedy *par excellence* for the alleviation of "running pains." Sarsaparilla is a good vehicle for its administration, but of late I employ in its place an infusion of China root, which seems to possess very valuable therapeutical properties for the treatment of this disease. This, though termed a root, is in reality a tuber, and when fractured has a brownish white colour, and contains much starchy matter. It is sold in almost all the bazaars in the Island, and it is said to be imported from China. It is very extensively used by the natives as a remedy for Parangi, and in fact for the cure of ulcers of all sorts including Syphilis. It is not mentioned in the old medical books which are in use among the Sinhalese, and consequently not exactly known how they came to use it in these cases. They might have learnt it from the Chinese themselves, who visited the Island at different periods as traders, or in other capacities ; or possibly they were informed of its therapeutic properties by the Portuguese, to whom its employment in Syphilis is said to have been made known at Goa by some Chinese traders about A. D. 1535.

China root acts as a powerful alterative, and is considered by natives as a specific against ulcers, especially of a chronic nature, and involving the bony structure as in those

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of Parangi. Its chief therapeutic effect seems to be to lessen the undue secretion of pus from the ulcer, and promote cicatrization. It is used by the natives either alone, in the form of powder, or in combination with mercury. In the employment of the latter remedy the natives do not pay the slightest regard to the idiosyncrasy of the system, and the result is it is often given to excess, and the sufferings many Parangi patients meet with are rather due to the abuse of this drug than to the disease itself.

Subjoined is a statement shewing the number of Parangi cases treated at the hospital here during the year 1877, and the result of that treatment:—

Number of cases treated.	Discharged. Cured.	Relieved.	Not relieved.	Died.	Remaining.
137	107	20	2	3	5

It will be seen from the above that the result on the whole is very satisfactory ; the number of patients was not so large as might have been, but this was occasioned by the frequent outbreaks of Cholera in the town, and once in the hospital itself, among some Parangi patients undergoing treatment there, which frightened the timid villagers and kept them away from the station.

I believe much might be done to mitigate the sufferings of the people from this loathsome disease, and even probably in process of time to eradicate it entirely from their midst by the improvement of their modes of living both with respect to food and their habitations. In any measures adopted by Government with that view, the chief consideration should be given to the means by which they may be placed in a position to provide themselves with more wholesome food and water than they now use. The new policy adopted by Government towards this province in the restoration of village tanks and construction of other irrigation works for the encouragement of Padi cultivation, is a step taken in the right direction, and is likely to prove of immense benefit to the people in that respect, and at the same time the chena cultivation, which has proved the ruin of the country in various ways, ought to be discouraged as much as possible.

E.

Report of Mr. A. Maartensz

REPORT on the Parangi Disease in the District of Trincomalee, by Assistant Colonial Surgeon Mr. A. MAARTENSZ.

THE population of the District of Trincomalee is 18,474, out of which 211 are suffering from Parangi and 15 from Leprosy.

Besides the above, several have been admitted, and their history recorded in the register of Parangi disease, of those who came from Anurádhapura district, and the villages adjoining the district of Trincomalie.

Although the number of cases of Parangi, as furnished by the headman, may not be correct, yet, taking the figures as the most approximate, it will appear that very little above one per cent. of the total population of the district is affected.

Yes ; the disease is among the inhabitants.

It is liable to increase by contagion, insufficient and unwholesome food, as owing to frequent droughts crops of paddy fail, and the people are obliged to live on whatever articles of diet they can possibly get, whether wholesome or otherwise. For want of sufficient time to gain experience, it is difficult to say whether the disease is increasing or decreasing. The cases I believe are sporadic and rather continuous. From want of time to visit all the affected villages and to stay sufficient time, I am not able to say positively whether there is any disproportion in the number of males and females, or in the number of children in a family. Average number from enquiry is three or four. From the fact of very young children getting the disease, and the eruption appearing from generation to generation, I am inclined to believe that it is hereditary. Have seen congenital cases, although only one case is recorded.

The dwellings of the inhabitants are generally low, of cadjans, ill-ventilated, and uncleanly kept.

Personal habits generally dirty and careless, that is, although they bathe regularly, yet from want of means they wear the same cloth, lie and work with it for weeks and months together, until by chance they get a clean piece. The patients who seek for admission into hospital come in very often in a state of semi-nudity, with a piece of dirty cloth wrapped round the waist which would appear to have been worn for a long time.

The supply of water depends upon localities. In Mútúr, for instance, there are several wells, the water of which is used for drinking and ablutionary purposes, and men and women, healthy or ill, stand by the side and bathe, the refuse water always returning to the well ; in the case of those affected with the Parangi disease, the water returning into the well is liable to contaminate and act injuriously on the healthy people. In Kinniya, water is obtained from shallow pits dug by the seaside, surrounded by loose sand in

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which decayed vegetables are always found, and cattle sometimes get in and refresh themselves; the colour of the water is dirty yellow, evidently from decayed vegetables. In Palamottai in Kattukkulam district, although there are three wells in the village, only one retains water throughout the year; the other two get dry very soon in the year.

It is generally contagious and auto-inoculable; however, I have recorded a case (No. 20) where, although the patient had an ulcer on the foot, the consequence of a wound from a stick, and he had a previous attack of the Parangi disease, and the body was well marked with cicatrices of old ulcers, yet, from the amount of cleanliness observed, nourishing food, protection of the ulcer from exposure and proper treatment, the occurrence of other ulcers have been I think prevented. That the disease is contagious is averred by the patient, yet no other patients in hospital suffering from ulcers, and occupying the same apartment in the hospital and lying near each other, have been attacked.

I have not observed any effect by the clothes.

From the information I have gathered, it does not appear that sexual intercourse necessarily gives rise to the disease; it is communicable from husband to wife and *vice versa* by simple contagion; the sexual organs were not affected. There are instances on record where the parents had not the disease at the birth of the child, yet the latter got it either at infancy or adolescence.

Yes, I think so. An affected person coming into an unaffected village and communicating and living with the people may give rise to the disease; likewise healthy people coming from an unaffected village to an affected one may get it. Cases are recorded.

No; but this may be owing to cleanliness observed, wholesome diet, and the absence of predisposition on the part of the patient in the hospital.

No. May be from absence of predisposition, and cleanliness on the part of the hospital attendants.

Yes, when there is a fissure.

I have not tried, nor heard the people say so; yet the dogs in the villages are generally mangy.

I think it may be communicated by flies carrying the virus from an ulcer of an affected person to an ulcer or broken skin of an unaffected person if exposed. It is probable; but I have not observed this in the hospital.

I think it is.

I think not. All the cases recorded shew that previous to the appearance of the eruption, the patient had a wound from a stick or sores on the feet by working in the fields, where there was a good deal of mud.

There is nothing on record or from my experience to make me believe that the disease can arise spontaneously; on the other hand, I believe certain causes are necessary for its appearance. It must either be inherited or the person must be predisposed, or it must arise by contagion.

The disease may exist and continue its ravages on the body and system for years, until I think it is arrested by change of diet, altered mode of living, cleanliness, and proper treatment; of the cases recorded, there are some of several years' duration.

Yes. Case No. 8 in the register is that of a person in good circumstances and able to live well. I have seen a young woman in Mútúr in Koddiyár district, whose parents were wealthy, and she herself well clad with plenty of jewels about her person, yet she was affected.

The generality of the cases recorded go to shew that the disease attacks once in childhood, and again at adult age.

I think so, if exposed to the contagion.

No. Inquiries even failed to give me any information as to the marriage of close relations.

Disease of the lungs existed with the Parangi in two cases in the hospital. Post-mortem appearance of one is recorded (case No. 31); another case occurred some time ago.

In several instances, the disease by attacking the bones have caused deformity; in some cases patients become emaciated and weak and affected with rheumatic pains of the joints, but I do not think that longevity is affected. One case is recorded (No. 8) of a Moorman who got better when he was seventy years of age; and there is one patient still in hospital blind, with a large ulcer on his leg which never heals, has large scars from Parangi, is upwards of eighty years of age.

I remember one case of Syphilis, who recovered and was discharged, and was subsequently admitted and treated for Parangi. This was some time ago; a case is also on record (No. 22.)

I have not heard of such a thing.

A course of alteratives and tonics, sarsaparilla or quassia with potass iodide, internally. Carbolic oil application to the ulcers. In obstinate cases, mild mercurial ointment, baths, and general cleanliness.

It is amenable to treatment and also curable, I think; those patients who recovered never returned with a fresh attack.

Cases seldom occur in the town, and the town practitioners do not get cases to treat. It is known as Karanthæ, Vycathu, Karupan or Parangi; they know of no varieties.

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To improve the circumstances of the people, to enable them to live on more wholesome diet than they can afford at present; to avoid such articles of food as they themselves know to be liable to aggravate, or indirectly to bring out the disease, avoidance of contact, cleanliness, and removal from affected villages. As the number of cases in the district is small, I would suggest the establishment of a Parangi hospital in the central part of the pattu most affected; the hospital need not I think be kept up for more than six months, at an expenditure of seven or eight hundred rupees for maintenance, clothing, and attendants. The very bad or incurable cases may be separated and made to live by themselves.

I think so.

I think it is a variety of syphilitic disease degenerating, in some cases, into Leprosy. The appearance of the eruption corresponds to those described in medical works on skin diseases as Syphilis tertiary; its occurring in some cases after an attack of Syphilis, irritated appearance of the soft palate and fauces, its yielding to mercurials and alteratives, all tend to prove it to be a form of modified Syphilis.

A compound preparation of mercury called by the natives "*pat-pam*," is the general treatment amongst the natives, but beyond the softening of the gums and loosening of the teeth, of which some patients complained, I have no evidence to shew that the disease is aggravated by mercury. Some patients who were admitted into hospital, and who were previously treated with mercury by the natives, had not recovered from the disease.

I cannot answer this from experience.

Remarks.

The name of the disease seems to be derived from the Tamil name for the Portuguese, and it is a tradition that the disease was imported by the Portuguese. Dr. Loos in his report on the Vanni District makes the same allusion. It may be a form of Spanish pock, and I believe that the eruption was at one time known in English as Spanish-pox, although I am not able at present to find any authority on the subject.

I do not think that the disease is endemic in the villages of Ceylon only. Eruptions agreeing in the appearance, symptoms, causes, and terminations have been described by Military medical officers as occurring in some parts of Asia and Africa; the "Delhi boil" would appear to be a disease much allied to the disease called in Ceylon the "Parangi."

The disease known as "Parangi" in Ceylon may only differ from the above in its not being contagious, but that it is not so, perhaps, may be questioned; yet the form of its first appearance in the form of a pimple or small boil, the length of time it takes to break, the discharge of ichor or sero-purulent matter, the situation on the arms and legs and back, peculiarity of its cicatrization like that after a burn, absence of derangement in the constitution, rather, I believe, tend to prove the disease to be synonymous with "*Parangi.*"

The disease affects alike the male and female; it is seldom that it has not made its first appearance at childhood. The history of Parangi shews that it attacks twice, once at childhood, then at adult age; indeed the scars which occurred in childhood still continue. In adult age the least irritation of the skin of the body, as a scratch or wound from a stick, is sufficient to give rise to the eruption. When the disease occurs in adult age, recovery is I believe more protracted, and in many instances it continues through life, and the patients ultimately die of bowel or chest complaint; yet from enquires I have made, I am satisfied that it does not shorten existence. The second attack in females has generally been preceded by obstruction of the menses.

Vaccination, I am glad to report, has not had any injurious effect, and from what I have recorded it will appear that the sore left on the arm after vaccination has not been the cause of the first or second appearance of the eruption; the disease has appeared both before and after vaccination; in short, vaccination neither protects, engenders, nor aggravates the disease. It is however alleged by some natives that children with a vaccinated sore on the arm attending a school where there may be children affected with the disease, flies settling on the body of the affected person are liable to convey the virus to the vaccinated child. This may be possible, yet none of the vaccinated marks shewed that a larger sore than that occurring after vaccination occurred; the marks are circular with minute dots as naturally as the vaccine marks in any other case.

Kurrakkan, sweet pumpkins, and buffalo milk are said by the natives to aggravate, if they are not the cause of the disease; it is a fact that where buffalo milk, in curdled form, called by natives "*tier,*" is most consumed, there the disease is mostly prevalent, and the patients themselves admit that they eat a good deal of it. Curdled milk is made by the addition of some acid to the milk, and then warmed, when the milk turns into curds, and when kept for a day or two, as it is generally done, it becomes sour It is possible that the acid acting on the stomach produces irritation of the skin, and naturally pimples and boils which ofterwards break into ulcers; the absence of cleanliness, application of irritating medicines, may cause them to enlarge.

The natives know of no prophylactic against the disease, beyond abstinence from such articles of food as are liable to irritate the skin ("keranthi" food.)

The treatment by the natives is the administration of mercury in a compound form called "pat-pam." This is administered until the gums get affected and the patient salivates,

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when they are made to bathe every day. This they say is a certain cure, and when the patient recovers he never gets the disease again; in the meantime the diet is wholly restricted to cow milk and rice. In cases where the treatment has not been properly carried out, or the diet not observed, the disease breaks out again.

Several of the patients who were treated in hospital had been salivated before, yet the disease had not disappeared.

The disease cannot, I think, like cholera or small-pox, be removed in a short time; generations may pass off before it is known that the disease has disappeared.

APPENDIX F.

Report of Mr. Vaitiyalingam

F.

REPORT on Parangi in the Mullaittivu District by Mr. E. VAITIYALINGAM, Assistant Colonial Surgeon.

Parangi prevails throughout the length and breadth of the District of Mullaittívu, but its origin or introduction into the district is not ascertainable, although it is supposed to have been from Portugal or Spain.

All the villages are more or less infected, and no village is known to be free from it. The population consists of two races—Tamils and Moors—and both are affected, but the disease is more common among the former.

According to the last census the population stands thus :—

Maritime Pattus	...	...	6,073
Vanni Pattus	...	...	2,519
Kilakkumúlai North	...	...	1,338

Total 9,930, composed of Tamils and Moors, the Tamils predominating in point of numbers, whilst the Moors are very small in comparison. The number of cases in each village is ascertainable only by the headmen. The disease exists always in every village and at all seasons of the year; but the wet weather, particularly the dew season, has a prejudicial influence on the disease, as the patients are generally found with it in its aggravated symptoms during this period of the year.

The disease is now declining, and this may be attributed principally to the working of the civil hospitals established by Government at Vavuniya-Vilánkulam and Mullaittívu, and also to some extent to the fresh air, good food, &c., brought on by village clearing, increased paddy cultivation, &c., introduced amongst the people.

The disease develops itself at varied times; it has no influence over one sex more than another; males and females, infants and youths, adults and old decrepit people, are all alike impregnated with it; and no man, woman, or child is believed to be free from it.

The disease appears to be an hereditary one; many infants suffer from it. There are many causes for the existence of the disease in the Vanni. The people live in villages closely surrounded by thick jungle and where they have no chance of fresh or open air; their habits are very dirty, and they are quite unclean; they do not observe personal cleanliness by washing regularly; they don't get change of clean clothing; they live in low, ill-ventilated houses with a single door for egress and ingress, and no window; the water they use is very unwholesome—they depend always on tank water, which is nothing but a collection of rain water. There is always a rapid growth of luxurious vegetation at the commencement of the winter, and this becomes decomposed in time, and the people use this water which is full of organic matter. If kept for a time, it decomposes and becomes offensive. They bathe in these tanks and take water for drinking also, and it is their habit to go to the tanks with a pot for water, and bathe first, and then take water and go home, and the result by the use of this water can easily be imagined. The healthy and the sick with Parangi all bathe in one and the same place, and even in villages where there are wells the water is dirtied from the manner of bathing.

The disease appears to be a contagious one, and it is communicable by direct contact, and also auto-inoculable by scratching; but I never observed a case communicated by wearing the clothes of the sick.

Parties who were quite healthy have been known to contract the disease by marrying those affected.

As there is not a village in the district free from the disease, no spreading of the disease occurs by the arrival of a sick person with Parangi in a village, but the arrival of a healthy person in a sick village, and his remaining for some time and associating with the sick people, has been known to communicate the disease in several instances.

I have not known any case where the disease has spread among the patients in a ward owing to the admission of a person suffering with the disease.

No attendants or servants are known to have contracted the disease from patients suffering with Parangi.

It is a prevailing opinion among the people that the disease could be communicated to a mother by a suckling child without any abrasion or fissure, but I know of no instance to my knowledge.

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Report of Mr. Vaitiyalingam.

I have never tried the poison of Parangi on the lower animals by inoculation, and I think the direct contact of the virus is necessary to communicate the disease to another individual, but no sore or abrasion is necessary.

I have known cases in which parties who have had no sore or abrasion, but only lived with the sick, eating and drinking in the same vessel, have contracted the disease, but not as soon as those who have had sores or broken skin.

It cannot be ascertained whether the disease can arise spontaneously, as the enquiry always leads to shew some contact, whether direct or indirect, with the virus. The virus may be introduced into the system without any affection of the genital organs, without sexual intercourse, and without any primary lesion whatever.

It is a prevailing impression among the people that the disease, if left to itself without being interfered with by treatment, would terminate of its own accord with the evolution of certain symptoms, but, if interfered with by giving mercury or other remedies and cut short, it is subject to relapse, and the disease will always remain in the constitution in some form or other. There is no ground for this theory; it is only a mere supposition. The disease, when it gets into the constitution once, is never known to have been eradicated, but remains in some form or other in the constitution, and the remedies regarded as the curative agents are mercury, iodide of potassium, and sarsaparilla, according to the nature and state of the patient and the stage of the disease. A mixture composed of two grains bichloride of mercury and two drachms of iodide of potassium to 24 ounces of infusion sarsaparilla, has been found an excellent mixture for the disease. However, these remedies have a marked effect in removing only certain symptoms of the disease, and produce for a time an apparent cure. Repeated trials in hundreds of cases have clearly shewn that these remedies exert an influence on the general secretory apparatus and promote absorption, and assist in getting rid of many of the morbid results of the disease. The disease has more affinity with syphilitic disease than with any other disorder.

If well-fed and half-starved persons are exposed to the poison of Parangi, the latter contract the disease much sooner and earlier and in the worst form. Persons who are in a cachectic state suffer much from this disease.

Persons who have been cured a second, third, and even fourth time, relapse when they go back to their villages and resume their own mode of living. I made a trial by detaining some patients I cured, in connection with the civil hospital in some occupation or other, where they had good food, good water, and good air; they have had no relapse, but, on the contrary, improved very much in health and were able to do any hard work.

I have never observed any connection with reference to the origin of the disease and the intermarriage of near relatives.

Although organic diseases were not observed to be the antecedent of the eruption, or the eruption to be the result of organic diseases, yet the organs are invariably found to be affected when a person suffers any considerable time with the disease, and the liver is the organ most frequently affected.

In good, strong, and healthy-looking persons, and in those who live in comfort and who observe personal cleanliness, the disease does not as a rule appear in its aggravated form, and when it does, it yields very easily to treatment and does not end in general bad health; but in those who are on the contrary in indigent circumstances, the disease comes in its aggravated form, the constitution becomes cachectic, they become sallow, worn, broken down, and eaten up by the disease, so that although it is not in itself a fatal disease, yet some organic disease supervenes, and the patient dies; and so I am of opinion the disease interferes with the longevity of the person attacked.

I know no instance of a patient who was attacked by Parangi having been attacked by Syphilis, neither *vice versa*.

It is a prevailing opinion that Parangi is a mild or rather a degenerated form of Syphilis, the poison or the virus being in a much diluted state.

No inoculation has ever been tried to my knowledge for the prevention or cure, or for any other purpose.

Under a careful treatment, with good food, &c., relief can always be obtained both in primary, secondary, as well as in the sequelæ; but relapses occur in several instances as stated above, when the patients return to their own mode of living.

A general name "Parangi" or "Kiranthi" disease, is the name given to the disease by the people and practitioners of this place.

It is considered to have a syphilitic taint in it, and it is treated generally with mercurial preparations named "pat-pam." China-root has acquired much reputation for the disease amongst the people, and they give it as a household medicine for the disease without consulting even the native practitioners.

Mercury is very injudiciously given by the native practitioners.

Pat-pam is a compound of mercury, camphor, turmeric, China-root and Shayang-kotte, and it is given twice a day until the mouth is well affected, and then the medicine is discontinued and a cold bath is given every morning very early until the mouth gets better. This is the standard practice of the native doctors.

As I have in my experience very frequently found that patients who have had thorough cures from the hospitals get relapses when they go to their villages and have recourse to their own way of living, therefore nourishing food, good water, and fresh air are the

PARANGI DISEASE.

Appendix F.

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principal agents that I would recommend in a great way to obtain the desired effect, with segregation and isolation of the sick.

From my experience I am led to believe that the disease in question and the tertiary form of Syphilis are the one and the same.

I have seen several aggravated cases of Parangi by the improper use of mercury. It is a prevailing opinion among the people and the medical practitioners that Parangi is a syphilitic disease, and mercury is an antidote for it, and therefore they use mercury, but without any consideration at all as to the different stages of the disease; and in cases where the constitution had already been undermined by protracted illness, and where the body is worn and broken down, and where we have recourse to iodide of potassium, sarsaparilla, cod-liver oil, they give mercury. In several instances I have observed cures have been effected by their "pat-pam."

G.

REPORT on Parangi Disease by Sub-Assistant Colonial Surgeon Mr. Eugene Ellis Modder.

Appendix G.

Report of Mr. Modder.

The Parangi disease prevails to some extent in the Chilaw district. It is found to exist more in the villages situated at a distance from the town than those which are near it. I do not think that it is persistent; but from what I have seen of the disease in this district, I am of opinion that it is on the decrease. The decrease is attributable to various causes: to the opening of roads, which to a certain extent make the villages to rise to some importance, as well as to people from other districts coming to settle in these villages, and to the improvement of their habits and mode of living. The disease does not appear in a sporadic form, nor is it epidemic, but the source of contagion could be traced in some cases, and in others a hereditary predisposition exists. It attacks alike persons of both sexes. In some instances, in families where there are several children, the disease appears in one or two at one time, but the others suffer at a later stage, and others are altogether exempted. I could only account for this by stating the predisposition to the disease exists in all these cases, but an exciting cause is required, which will make the disease to appear sooner in the one case, and delay its occurrence in the other.

The number of children to a family varies, the average being about four. In my opinion, Parangi is a hereditary disease. I have never seen a congenital case; but many instances have come under my observation, where it had appeared during infancy and childhood. It first occurs in the form of a sore; very often the patient tells you that he had a wound or an injury about the part where the sore formed; the sore continues for some time (for a period varying from three to five months), when it either heals of its own accord, without the application of any medicinal substance, or after some application is used. About this time the patient begins to suffer from pains in the joints as well as the bones. Fever occurs: in some instances it is very severe in character (the temperature being 99°, and sometimes rising as high as 100° or 102° in the evening); it is comparatively slight in others.

The fever is attended with constitutional disturbance; it remains for about two or three days, when a crop of eruptions, papular in character, appear about the different parts of the body, beginning at the face, and gradually extending downwards; these papules vary in size from that of a pepper-corn upwards. The cuticle covering then gets raised, and they contain a fluid which is at first transparent and gradually gets turbid; shortly afterwards scabs begin to form, and when these are removed small ulcers are found situated below them.

In persons affected with the milder form of the disease, the eruption does not go on so far as the ulcerative stage, but the scabs drop off, leaving a mere discoloration of the skin, which disappears after a time; but when the disease occurs in a severe form, the ulcers begin to enlarge and remain stationary for sometime, but, if placed under proper treatment, these ulcers heal. At a still later period the patient begins to suffer in his general health; he begins to get anæmic, and also suffers from pains, especially about the bones situated under the skin, such as the tibia, the ulna, and sometimes the bones of the head; after a short time nodes begin to form, and these ulcerate, leaving portions of the bones exposed. At about this time tubercles appear, which gradually ulcerate and spread about the different parts of the body; these ulcers are superficial, and in the majority of cases do not extend below the surface of the true skin. In most of the cases these ulcers heal in one direction while they spread in the other; they have ragged edges, the surface is either irritable or indolent, and the discharge serous or sero-sanguineous; when these ulcers are situated about the face, they destroy portions of the nose and sometimes even the eyelids and lips. And when the healing process goes on, by the contraction of the skin, caused by the cicatrix, the eyelids are sometimes drawn downwards, making the patient look quite disfigured. When the ulceration takes place about the extremities, it is followed by the contraction of the toes and fingers, and when it occurs about the neighbourhood of the large joints, such as the knee, the ankle, the shoulder, and the elbow, it is followed by anchylosis, brought on by the parts being kept in one position when the ulcer cicatrizes.

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APPENDIX G.

Report of Mr. Modder.

The people in this district live in huts built of sticks and mud and thatched with cadjans or straw. These huts, as a rule, are not properly ventilated, and are kept in a very filthy state. They do not pay any attention to the clothing they wear; perhaps these cloths are not washed for months together.

They live principally on yams of different kinds, kurakkan and other fine grain, and rice occasionally. Besides these, venison and jungle herbs of various kinds, as well as fish, form the principal articles of diet. They resort to some pond or tank for their water-supply, and the water so obtained is not of very good quality.

The Parangi disease is a contagious one. Most of the cases that have come under my observation were said to have been caused by direct contact with a person already affected with it.

I have never known the disease to occur among the patients in a hospital owing to the admission of a person suffering from Parangi; perhaps this is owing to care being taken to separate such cases from the others in the ward. Nor have I known an instance where the attendants in a hospital contracted the disease from patients. A child may communicate the disease to the breast of the mother when sucking, provided there is a fissure. I have never tried to communicate the disease by inoculation to the lower animals I am not in a position to answer this question.

The Parangi disease can only be communicated by direct contact with the virus, and it is always necessary that the matter should come in contact with a sore or abraded surface. The disease cannot arise spontaneously; it runs a definite course; but the duration varies with the habits and mode of living, the food, as well as the health of the patient previous to the occurrence of the disease.

For the same reason it will be found that it will alike attack the well-fed and the half-starved, if both are equally exposed to the same conditions, but the severity of the disease will be modified in the one case and increases in the other. I have never known it to occur among persons living in comfort and observing habits of personal cleanliness, but this may be owing to their not being exposed to the influence of the disease.

Parangi does not attack a person more than once in his life-time, nor is it liable to recur. I have not been able to trace any connection with reference to the origin of the disease and the intermarriage of near relations, nor have I found the eruption to exist in connection with the disease of any organ.

During the eruptive stage the general health is not affected at all; but during the later stages of the disease, the patient suffers in his general health by the excessive discharges consequent upon ulcers found about the different parts of the body.

I have never had a case under my treatment of a person who was attacked with Syphilis suffering from Parangi, nor have I seen the case of a person, who had previously suffered from Parangi, with Syphilis.

Inoculation is not practised for the prevention or cure of the disease by the people here.

The following is the treatment I adopt in these cases.

During the first stage of the disease, when it is purely local, the internal administration of iodide of potassium, either alone, or combined with the iodide of iron when there is tendency to anæmia, with the local application of nitric acid, the nitrate of silver, or some other caustic, followed by stimulating lotions such as the sulphates of copper or zinc. If the caustic be properly applied and at an early stage, I think it would prevent the further progress of the disease.

During the febrile stage, diuretics and diaphoretics, combined with occasionally a dose of quinine, and now and again a saline aperient, are all that is required. After the eruption has appeared, the febrile symptoms subsided, iodide of potassium is the only medicine which I have found to be good. In most of the cases when I have used the medicine at an early stage, I found that it has the power of preventing the eruption appearing, and if it be used after it has come out, it entirely removes the eruption.

The patient is made to bathe in warm water daily, and soap is freely used. Carbolic oil is next applied to the eruption; and I may here mention that I found the ointment of the nitrate of mercury do much good in some cases.

During that stage of the disease when tubercles form about the different parts of the body, and the bones begin to get affected, iodide of potassium internally, and the tincture or the ointment of iodine applied locally, is found to do much good. Sometimes the nodes do not disappear even after the application of iodine. Blisters are of great service.

When the tubercles and nodes begin to soften and ulcerate, and the patient's general health begins to get affected, the iodide of potassium cannot be used by itself, but great advantage is derived by combining it with the iodide of iron. In this stage carbolic acid either in the form of lotion or mixed with oil, applied to these ulcers, is found to be of great service. In like manner the lotions of the sulphates of zinc and copper, or the sugar of lead and opium lotion, and sometimes nitric acid with opium in the form of lotion, may be used with advantage. In some cases these lotions, even when continued for some time do not produce the desired effect. An ointment composed of cod-liver oil and liquor potassæ and sometimes an ointment made of the extract of belladonna, alum, and lard, was found to succeed in effecting a cure.

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The disease is treated by vedarálas in this district; in fact, it is but seldom that the patients seek to gain admission into the hospital, or to be treated as out-door patients, without being first under the treatment of vedarálas. They, as a rule, use mercury, locally as well as internally, and I have known instances where patients have been salivated more than three or four times, without deriving any benefit whatever. The disease is known to the vedarálas by the name of "Parangi-leda," but they also give different other names, such as "Oḍḍi Parangi," where a node ulcerates and leaves a sinus.

When sores begin to form about the soles of the feet, or the skin or the sole of the foot gets cracked, and ulcerates, it is called "Dumas." When the nose gets affected, it is called "Pínas Rógé." "Alu Parangi" is a scaly eruption found about the different parts of the body, but when there are only one or two patches, and these get raised above the level of the surrounding skin, it is then known as "Dada Parangi." When the glands about the different parts of the body are affected, or when tubercles form, they are called "Geṭa or Gaḍi Parangi." "Aramana-wana Parangi," where a sore forms and remains without healing for some time.

The prophylactic measures which I would recommend are, isolation of the sick where it is practicable. This is done to a certain extent by the people in the villages themselves, A patient suffering from Parangi is at once removed to a distance from the house, a small shed is put up for the purpose, and he is there kept and treated by the vedarálas. This practice is I hear carried on for series of years in this district; but this alone will not do, for if such patients, after they once recover, be allowed to go about with those who have not suffered from the disease, and if attention be not paid to their food and clothing, the disease may break out again, and be communicated to others.

I am strongly of opinion that compulsory segregation and isolation of the sick, if carried out, would have the effect of stamping out the disease from the district.

From all that I have already said on the subject, it will be seen that "Parangi" is a distinct disease, *sui generis;* it is neither a modified form of Syphilis, nor a leprous, nor a cachectic disease.

I have seen the disease aggravated by improper treatment, such as the abuse of mercury, and it is in this state that I find most of the cases when they come to me for treatment. I find that the disease is modified to a certain extent in the course of other disorders, such as small-pox.

One case which came under my observation, where the patient suffering with a primary sore "Parangi" was attacked with small-pox, and some of the vesicles, I found, did not heal, but went through the different stages, that the eruption in Parangi undergoes. In this case the patient was treated with iodide of potassium, and after taking it for some time every trace of the eruption disappeared.

I have not seen a case where a person was vaccinated, and where the Parangi eruption ran its course, during the time the vaccine vesicles were present; but I have known of instances where persons having no predisposition whatever to the Parangi disease, had suffered from it, some time after they were vaccinated.

The eruption is modified to a certain extent in the case of a pregnant woman, but soon after confinement it comes on in an aggravated form.

H.

APPENDIX H.

List of Works on Medicine.

LIST of WORKS on MEDICINE in use among the Siṇhalese.

Sir William Jones, the celebrated Oriental scholar, asserted "that there is no evidence that in any language of Asia there exists one original treatise on medicine as a science;" and Mills, the historian of India, makes a similar statement.

I believe the researches of Professor Wilson, Drs. Hugue, Ainslie, Boyle and Wise, have disproved these assertions as regards India, but there can be no doubt that the treatises on medicine in use amongst the Siṇhalese are merely translations from the Sanscrit, and are in no case original compositions.

The following are the books on medicine and kindred subjects in use among the native medical practitioners of Ceylon :—

I.—*Books containing the Names of Medical Plants, Herbs, &c.*

1. Vásudéva Nighaṇḍu, වාසුදේව නිඝණ්ඩු.—An Indian work containing a description of the medicinal plants and their qualities.
2. Sarasvatí Nighaṇḍu, සරස්වතී නිඝණ්ඩු.—An abridgement of the above apparently.
3. Námavali Nighaṇḍu, නාමාවලි නිඝණ්ඩු.—Names of plants, &c. composed in Ceylon.
4. Sára Nighaṇḍu, සාර නිඝණ්ඩු.—Contains the names of the most important articles used in medicine.
5. Dhanvantarí Nighaṇḍu, ධන්වන්තරී නිඝණ්ඩු.—A Sanscrit work of great antiquity of the same nature as above—very scarce.

II.—*Books relating to the Nature and Symptoms of Diseases, and to the Anatomy of the Human Frame.*

1. Arista Satake, අරිෂ්ට සතකේ.—This is a work of few pages containing about hundred Sanscrit stanzas, treating chiefly of the symptoms of the diseases commonly met with. It has a Sinhalese translation, and it is one of the first books put into the hands of a native medical student.
2. Mádhawa Nidháné, මාධව නිධානේ.—An Indian work, but in great repute among the Sinhalese medical men. It is considered the chief authority on everything connected with symptology and etiology of disease. Has been lately printed in Sinhalese characters with a translation in the same language under the auspices of the Pandit, Batuwantudáwé.
3. Sussrute, සුශ්‍රුතේ.—This is the well-known work in medicine used by the Hindoos. The composition of it is supposed to be about the year 1000 B.C. It has six divisions, treating on surgery, nosology, anatomy, therapeutics, toxicology, and local diseases of the ear, eye, &c. Of late this work has come to be used greatly by the native doctors, and there is hardly a native doctor of any intelligence who does not possess a printed copy of it.
4. Charaké, චරකේ.—Only a portion of this old Indian work is now extant in Ceylon. It relates to anatomy and is known as *Surerasthana.* This book is of an older date than Sussrute.
5. Sárangadharé, සාරංගධරේ.—A work treating on nosology, general principles of medicine, and diseases of the ear and eye.

III.—*Books treating on the Qualities and Properties of Medicinal Plants and Preparation of Metallic Drugs.*

1. Gunapádé, ගුණපාදේ.—Has about 700 stanzas, and treats of different qualities of various drugs.
2. Siddhausadha Nighandu, සිද්ධෞෂධ නිඝණ්ඩු.—Contains about 331 verses treating on the qualities and mode of preparing medicine.
3. Rasa Ratnákaré, රසරත්නාකරේ —Treats on the preparation of metallic drugs.

IV.—Books on the Nature and Cure of Diseases.

1. Sárártha Sangrahaya, සාරාර්ථ සංග්‍රහය —The oldest book on medicine of those written in Ceylon now extant. It was composed by King Buddadassa who reigned at Anurádhapura from 339 to 410 A.D. He was reputed to be the most learned in the healing art in his time, and he is said to have effected most wonderful cures, some of which, such as opening the skull and removing tadpoles from it, are too absurd to be believed. His book is written mainly in Sinhalese, but frequently interspersed with Sanscrit quotations, and the arrangement of the subject is not unlike that of the Indian works Sussurte, &c.
2. Yógárnawé, යෝගාර්ණවේ.—Written in old Sinhalese prose by a priest who lived at Anurádhapura. The reverend author's name was Mayura Pada, and the date of its composition is given as 1219. It treats chiefly of the various combinations of drugs used in different diseases, and the treatment of the latter.
3. Warayóga Sáré, වරයෝගසාරේ.—Very similar to the above, but in more frequent use among the Sinhalese doctors. Neither the date of its composition nor the author's name is known.
4. Manjusé, මඤ්ජුසේ. This is one of the standard works in use among the native medical men. It was written by a Buddhist priest, Atta Dasse, of Parakumbura, who resided in Attanagalu Vihára in Siyané-kóralé about the year 1267, reign of Prákkrama Báhu. It treats of the nature of remedies employed in disease, the mode of their exhibition, especially in the case of vegetable drugs, the description of different diseases, with their respective symptoms. In fact, it embraces the whole system of native medicine except the diseases relating to women, which the reverend author says he has purposely omitted as being unsuited to be treated by men of his order for whose use the book was intended. It is said to have been composed after consulting sixty-three different medical works then in existence, but most of these are now lost and known only by name. It was originally written in Páli gátás, of which there are over 5,000, but a Sinhalese translation has been added to it subsequently.
5. Sára Sansépaya, සාරසංක්ෂේපය.—An Indian work, lately printed with a Sinhalese translation, contains over a thousand stanzas, and is similar to Manjusé, but treats only of diseases and their treatment.
6. Sárasangrahaya, සාරසංග්‍රහය. } Both Indian works rare in Ceylon.
7. Vaiddiya Amurté, වෛද්‍යාමෘතේ. } Both Indian works rare in Ceylon.
8. Chintámani, චින්තාමණි.—There are several works by this name, all of Indian origin, viz.: (A) *Vaidiya Chintámani* said to have been composed by Dhanwantarí, and treats of pulse, fevers, spasmodic and nervous affections, derangements of the urinary organs not met with in Ceylon at the present day; (B) *Vaidiya Chintámani* written by Vullebundrah, a general treatise on disease and their remedies; (C) *Arogya Chintámani*, a work on medicine, by Pandit Damodere; *Chamutcara Chintámani*, a manual for the treatment of many diseases, and written by Góvinda Rájah.
9. Yógaratnákaré, යෝග රත්නාකරේ.—A work on medicine in Sinhalese, written about the latter end of the 16th century, and its authorship is attributed to the famous Totagamuwa, the greatest poet ever Ceylon produced, but the diction is very unlike

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his. The book is arranged on the plan of Maṇjusé and other earlier works, and may be said to treat of the whole system of medicine as known to the natives. It is apparently a collation from several books both of Indian and Ceylon origin, and is much used by the native doctors. In this book for the first time we meet with the mention of the disease *Parangi* by name in any of the standard works on medicine that are in use among the Siṇhalese. It gives no description of the disease or its causation, but simply details some prescriptions for its treatment.

10. Vaidyálaṇkáraya, වෛද්‍යාලංකාරය.—A Sanskrit work of 278.
11. Yógapiṭaké, යෝගපිටකේ.—A work written in Ceylon.
12. Kalavéda, කලවේද.—A work written in Ceylon.
13. Lakshana Jayadéwé, ලක්ෂණ ජයදේවේ.—An Indian work.
14. Bhaisajjakalpaya, භෛෂජ්‍ය කල්පය.—An Indian work in great repute among the Siṇhalese doctors.
15. Yogadháranė, යෝගධාරණේ.—A Siṇhalese work of about 100 verses containing a few select prescriptions for each of the known diseases, written by a man of Mátara District, about 100 years ago.
16. Yóga Sataké, යෝගශතකේ.—An Indian composition by one Varænchi. It has 100 stanzas (Sanskrit) detailing select prescriptions for the cure of various diseases.
17. Satasslóké, ශතශ්ලෝකේ.—An ancient work about 100 stanzas, detailing some select prescriptions for many of the diseases, and much like *Yógasataké*.
18. Bhaisajja Sárárthé Sangrahaya, භෛෂජ්‍ය සාරාර්ථ සංග්‍රහය.—This book is a compilation made by one Don Siman Tillekeratne Abeyewardene, about a hundred years ago or early part of the present century. He was the Mudaliyár of Kandaboda-pattu of Mátara, and is said to have made three copies of the book, of which only the one retained by him, and now in the possession of his grandson, the present intelligent President of the Village Council at Weligama, is now extant.
19. Kámaratnaya, කාමරත්නය.—An Indian work which treats chiefly of the diseases relating to genital organs and their treatment. It is very rare in Ceylon, and a copy is in the possession of the Ganégoḍa Mohoṭṭála in Sabaragamuwa District.

V.—*Books not extant now, but are known by name and are referred to in Manjusé and other Works on Medicine in use among the Siṇhalese.*

1. Náráyané.
2. Kéwataratana Málaya.
3. Amitapphabaya.
4. Prayóga Ratnávaliya
5. Tikichcha Kálika.
6. Báhaṭaya.
7. Attaheyya Satthe.
8. Amatamálaya.
9. Kasakhé.
10. Hárite.
11. Mahayané.
12. Kharanade.
13. Mahakassapi.
14. Kharapamya.
15. Chandate.
16. Assita Sanhitá.
17. Bhójarajjiya.
18. Siddhiyóga Samuccaya.
19. Vaddhagaggyia.
20. Jalukanniya.
21. Védehiya.
21a. Bhisakka Mutthi.
22. Jikecchamate.
23. Kassapiya
24. Kankayamya.
25. Sakkamaté.
26. Dabbávali.
27. Alambaniya.
28. Paṭasuddhiya.
29. Payogarnawe.
30. Kanhapurane.
31. Múlagamé.
32. Hete.
33. Bhalluké.
34. Buddhavédahé.
35. Yógaratna Samuccaya.
36. Nagajjuniya.
37. Kumára Sanhitá.
38. Payóga Ratnákaré.
39. Hirannakkhiya.
40. Kaccáyanaya.
41. Payóga Kósé.
42. Cakkhusénaya.
43. Amalanjah.
44. Haricande.
45. Orabbhe.
46. Yógamata.
47. Bharabvajiya.
48. Amatadharaya.
49. Yógakósé.
50. Bindusáre.
51. Atthanga Sangrahé.
52. Rógáyatana Samuccaya.
53. Vijayarakshita Tíka.
54. Chakradatte.
55. Dravyaguna Darpane.
56. Bhaisajja Manemáláwa.*

I.

PAPERS ON YAWS AND SOME ALLIED DISEASES. By GAVIN MILROY, M.D., F.R.C.P.

Appendix I.

Papers on Yaws, &c., by Dr. Gavin Milroy.

(Copied from the "Medical Times and Gazette.")

No. I.

November 4, 1876.

THERE is no member of Cullen's class of Cachexiæ ("those diseases which consist in a depraved state of the whole, or of a considerable part, of the habit of the body, without any primary pyrexia or neurosis combined with that state") respecting which the profession is more ignorant than the malady of "Yaws"—the "Pian" of French writers, the "Framboesia" of nosologists. Only four or five years ago the Colonial Office sought the opinion of the College of Physicians on the subject, and the College frankly confessed its inability to answer the appeal.

Unhappily, amid the dearth of real knowledge, some late writers of repute have not hesitated to speak with unwise confidence as to the nature as well as the geographical history of the disease, and by hasty, ill-advised statements have only served to mislead

* This book is mentioned in Ainslie's work on Materia Medica of India as one containing over 1,100 stanzas in use among the Siṇhalese doctors, and it is doubtful whether it is extant at the present day.

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us further from the truth. No one has more erred in this respect than Dr. Copland in his great work, "The Dictionary of Practical Medicine." Assuming, on most insufficient grounds, that Yaws is a variety or modification of venereal disease, he designates it "African Syphilis;" and he even goes so far as to surmise that the Syphilis of Europe "is derived from, and hence identical with the indigenous Yaws of native Africans." To what mischievous practical results the belief in the syphilitic or syphiloid nature of Yaws and some allied affections has given rise, will be pointed out in the sequel.

With respect to the hitherto widely received opinion of the disease being confined to the West African coast and to the West Indies (the latter country having had it, according to general belief, introduced from the former), it will be seen how extremely doubtful and how misleading this view really is when the actual geography of the malady is duly investigated.

The distinctive characteristic of Yaws is the eruption of raised or tuberculate pustules of a round or ovoid form, which become covered with a yellow or brownish scab or crust, and from which, on the detachment of this crust, there extrudes a raw-flesh fungus, resembling somewhat, by its reddish colour and granulated surface, the appearance of a raspberry *(framboise.)* Hence the term "Frambœsia," and also that of "Yaws," said to be an African word having the same meaning. The fungous excrescence, usually moist on the surface, with a viscid discharge, may vary much in size, colour, and form in different instances, according to its situation, the chronicity of the case, the age of the patient, and the cachexia of the constitution. Sometimes, on the falling off of the crust, the rounded raw-flesh surface is quite smooth and flat, or but little raised above the adjacent skin; or, more rarely, it becomes somewhat hollowed out, the edges being considerably above the level of the centre of the sore. Very generally the raw surfaces, whether protuberant or otherwise, are but little sensitive to the touch, and cause but slight pain or uneasiness on pressure. This feature often serves to assist in distinguishing a Yaw sore from other forms of ulceration. The discharge is usually scanty and of an unhealthy character.

The eruption of Yaws occurs most frequently on the face, neck, shoulders, front of the chest, and the extremities; often also about the pudenda and in the neighbourhood of the anus. The tuberculate pustules are usually single or discrete, but sometimes are clustered together, and occasionally they assume a crescentic or annular arrangement, enclosing in the centre a portion of unaffected skin—the "ringworm yaws" of the West Indies (Bowerbank). In children more especially the eruption often appears as a ring around the mouth, also too around the anus, where "the tubercules sometimes coalesce and form one projecting circular (red) band, an inch or more in breadth (Imray). The throat and inside of the mouth are rarely affected, and only after the disease has long existed.

In many cases of Yaws, and specially when the disease has been long neglected, and the constitution has become much deteriorated, there will frequently be found, besides the pathognomonic eruption now described, other forms of cutaneous disease, varying in character, but all serving to indicate the cachexia and depravement of the whole system. More or less of scaliness and desquamation of the skin is almost invariably present; and besides this, patches of vesiculo-pustular eczema are of not uncommon occurrence, and tend to aggravate greatly the distress of the patient.

In addition to these maladies of the surface, there is very generally in neglected cases a marked tendency to the occurrence of serpiginous ulceration in the seats of Yaw eruption, after the early marks of this eruption have ceased to exist. And then these ulcerations become the most conspicuous features or manifestations of the distemper. Among the earliest cases pointed out to me in the West Indies were several of this sort, the real nature of which I did not at first understand. The following extracts from my report* will probably best convey to the reader some of the various external characters of this somewhat multiform malady as it came under my observation :—

I had been some time in Demerara before an opportunity occurred of my meeting with a case of a distemper which I had often desired to see for myself. The first was in an adult coolie, a patient in one of the ulcer wards of the Colonial Hospital, and was of a mild character. There were several scattered dark spots over the front of the chest and a few on the neck and face, which indicated, I was told, where the Yaw eruption had been ; and there still remained the slightly protuberant raw surfaces of two or three small Yaw-sores on the left cheek, temple, and ear. The next instances were in a poor Negro woman and her two young children, who had been brought by the police to the hospital in a destitute condition, and were all found to have more or less of decided Yaw marks on them. In the mother the most conspicuous symptom was the existence of several red fungoid excrescences on the ankles. On the forearms were numerous large, dark, and raised papules or tubercules, which looked quite dry, and without any appearance of crust or discharge upon their surfaces. The elder child had, besides some large dark stains over the body where Yaw spots had been, an ulcerated surface about the angles of the mouth. In the same out-house was a Creole woman in whom the disease, as pointed out to me, consisted in numerous superficial—at least not deep-seated—irregularly ovoid, unhealthy ulcerations, from one inch and a-half to two inches in length, over the front of the chest.

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* "On Leprosy and Yaws in the West Indies." Presented to Parliament, March, 1873.

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At Berbice I saw a severe chronic case in an old man in the Almshouse: it was characterised by irregularly circular ulcerations on the lower extremities. The patient was in the same small ward with two cases of Leprosy and two or three other cases of ordinary ulcer.

There were two cases in the out-house ward of the Colonial Hospital at Trinidad—both cases in coolies; one had been of long standing. He had numerous prominent scabby spots over the trunk and extremities, of the size and appearance of small or largish limpet-shells, and covered with dry, darkish crusts, the removal of which (with a probe) exposed a raw surface, sometimes bleeding a little and having a red granulated or slightly fungoid appearance, but with little, if any, purulent discharge on their surface. The case had been many months in the hospital, at times considerably improving, and then relapsing. In the other patient, the malady consisted in a large pale ulcerated surface over the front of the ankle and the dorsum of the foot, composed of three irregularly circular superficial ulcers, with raised margins, and shewing no tendency to cicatrisation."

Of two cases which I saw in a village a few miles distant from Port of Spain, "one was in a young child, who had Yaws ulceration around the angles of the mouth, and on the nates near the anus. The second was in a middle-aged woman, who had numerous rounded or horseshoe-shaped superficial ulcers on the front of the chest, arms, and legs, having raised margins and large granulations in the centre; some were covered with a yellowish crust or scab." In Jamaica, I saw one case in the Kingston public hospital. "The patient, a woman, had been admitted with Syphilis. There were two or three well-marked Yaw fungous ulcers on the thighs.† In the coolie depôt I saw three Hindus who had been treated for the disease in the Lepers' Home, and had been recently discharged. In one of them several Yaw tubercules, which look like small limpet-shells adhering to the skin, were still to be seen on the body and limbs. In the Lunatic Asylum an inmate was pointed out to me, who was dying from the effects of gangrene of the foot, induced, I was told, by a Yaw ulcer. The patient had repeatedly suffered from Yaw disease at different times before the present attack."

When the sick are left destitute, and the treatment of the disease is either utterly neglected or has been unsuitable and improper, the cachectic ulceration commits sad ravages, and the condition of the sufferers becomes deplorable indeed, as I found to be the case with the numerous patients that had been gathered together from different districts into the hospitals in Dominica. It was in respect of the effects of the disease in that Island that the Colonial Office had found it needful, in the latter part of 1871, to apply for advice from the College of Physicans. From the following passage in my report the reader will best judge of the sequelæ of neglect and mismanagment of the malady:—

It was not till I reached Dominica that I fully understood the gravity of the disease of Yaws in its advanced and aggravated forms When, on my first visit to the hospital at Morne Bruce, near Roseau, I witnessed in many of the patients extensive ulceration of the legs and feet, which had led to the loss of several of the toes or to stiffened wrist and elbow-joints, with other disabling marks of long suffering, the sight was most distressing. Some of the younger children were in a deplorable condition, the victims evidently of starvation and neglect, emaciated to the bone, the limbs seamed with old scars and fresh sores, unable to turn themselves in bed, and requiring to be lifted up to be fed or dressed. As almost all the cases were of long-standing, the primary pustulo-tubercular cutaneous eruption was to be seen in comparatively few of the patients; the dry white scurfiness of the surface (*pian dartre* of French writers) was much more common. On admission the skin was always begrimed with dirt. In the case of a poor Hindu youth I saw in the almshouse in George Town, Demerara, besides the surface of the cheeks and extremities being occupied with Yaw scabs, or with the dark marks left by former eruptions, and extreme emaciation, the fingers of both hands were contracted, the left knee also was contracted, and the right one partially so, and the right foot had become everted, the results of scars from old ulcerations.

And now concerning "some allied diseases," alluded to in the title of the present paper. Soon after writing my report, my attention was incidentally drawn to the "Parangi disease" of Ceylon; its very name had previously been unknown to me. From the perusal of a most interesting and instructive official report, printed by Dr. Loos, Colonial Surgeon, entitled: "Depopulation of the Vanni District," and dated Jaffna, 26th August, 1868, for which I was indebted to the Colonial Office, I was much struck with the resemblance in many respects of the history of the disease with what I had seen of bad chronic cases of Yaws. Dr. Loos's narrative stands thus, and cannot fail to be read with much interest by the profession in this country, to whom it must be, I presume, quite unknown:

Setting aside the cases which may be easily resolved into well-known forms of skin disease met with everywhere, there is an obscure class of skin diseases, intimately allied and probably

* Dr. Ross, one of the surgeons of the hospital, says:—"A case occurred in a child about six months after admission for fracture of the femur. It was a well-marked case. Another case of a woman, admitted with Syphilis (primary), who afterwards developed characteristic Yaws on the inner side of the thigh. In this case the Syphilis disappeared rapidly under the usual treatment, but the Yaws took a much longer time. The disease did not spread from these cases."—Report, page 60.

having a common origin, prevalent in the interior of Ceylon generally, and more especially in the Vanni, a district in the north of the Island. To this class I would restrict the term "Parangi." The disease is met with in the maritime parts of the Island, but I am satisfied it is there in a mild and modified form, probably from the aggravating causes not being so fully in operation as they are in the interior. It is met with in both sexes and at all ages; the one sex is not more liable to it than the other, and it is equally common at all periods of life. The eruptions are either pustular or tubercular, less frequently scaly. The pustules are small, round, and scattered, with an elevated scab, as in Rupia. The tubercules are first hard, but afterwards soften and give exit to pus, and the ulcers formed are apt to be sinuous. These frequently run together and larger ulcers are formed, which are liable to spread. The sores are irregular in shape, in some parts deeper than at other parts, covered more or less with yellowish and dark-coloured crusts, the discharge ichorous but not copious. Sometimes the ulcers were found healed in the centre, or were healing in one direction, while they were spreading in another, so that extensive portions of the surface were found cicatrised, while other portions were ulcerated. In children, ulceration was sometimes observed around the lips, and there were many cases of excoriations at the angles of the mouth, sometimes with white discoloration. One child had a large ulcer on the right nates, excavated, with yellow sloughs; another was in a wretched state of emaciation, with several ulcers on the body and ulceration of the nostrils. The eruptions on the children were pustules or tubercules, the summits of which appeared to have a thin mucous lining from which serum exuded, and some had decidedly mucous tubercules (condylomata) near the anus. In older children and adults, nodes and affections of the bones were common, and obviously connected with the progress of the disease. I met with several young people who had become crippled from this cause, and from contraction of the cicatrices of ulcers about the joints. Many also complained of pains in the joints, and it was stated that such pains are often the precursors of the eruptions. Pustular eruptions were found in all parts of the body, including the face. The most common seats of ulceration were the hips, knees, and elbow-joints, but the dorsum of the foot, the back of the wrist and fingers, forearms and legs, were also in many cases ulcerated.

In a valuable report by Dr. Danforth, Assistant Colonial Surgeon, dated January 6, 1873, further particulars are given respecting the outward features of the disease, as he saw it in the Vanni district during a six months' visit to the locality in the previous year :—

It is characterized in its early stages by cutaneous eruptions ; Psoriasis is by far the most frequent of these eruptions. It is often associated with fissures of the skin, affecting chiefly the palms of the hands and the soles of the feet. The next in frequency are the tubercules ; some of these are small, rounded, hard, and elevated above the level of the skin, developing in small circular groups with healthy skin intervening and forming a small centre to each patch, while others are large, soft, isolated, and little elevated above the surface. These are generally scattered over the whole surface of the body. The vesicular and pustular varieties are not of very common occurrence, and are chiefly found in children of a broken constitution.

As the disease advances ulceration sets in, the ulcers commencing in the cracks and fissures of Psoriasis, or in the tubercules, pustules, and vesicles. Not unfrequently the ulcers originate in boils of a chronic character. The ulcers are often found in all parts of the body, chiefly on the forearms and legs ; they are circular, with elevated edges, and spread in every direction, destroying deeply the affected parts. The secretion is an unhealthy pus or a mere watery ichor. Not unfrequently the ulcers are irregular and foul, spreading on one side and healing on the other."

The reader will doubtless have noticed the absence, in the descriptive accounts of the Parangi by Drs. Loos and Danforth, of any distinct mention of the fungous excrescence from the ulcerated surface which constitutes the pathognomonic character of Yaw ulcers in the early stage of that disease. But, curiously enough, this feature is specified in the description given in Mr. Marshall's very interesting work, "Medical Topography of Ceylon," published above forty years ago. He says :—

Obviously the term *Parangi* is used in an extremely vague sense to denominate all sorts of troublesome or unmanageable cutaneous affections, varying from chronic, squamous, or papulo-pustular eruptions attended with great itchiness and irritation, and with or without a thickened elephantine or tuberculated state of the integuments, to the existence of numerous superficial ulcerations, which are often covered with thick crusts or scabs, or remain open and occasionally *become the seat of a large excrescence*, and which are usually accompanied with severe pains in the joints and frequently also with the formation of tumours or abcesses in different parts of the body."

The characteristic fungus protruding from the Yaw tubercules is a marked feature of the "Coko" disease of Fiji, to which I shall invite the attention of the reader in my next paper.

No. II.

February 17th, 1877.

THE chief aim of my former paper in your Journal (November 4) was, *first*, to invite the attention of medical men generally, and especially of those who are residents in our colonies or elsewhere abroad, or who may professionally visit those countries (as the officers of the Navy do), to the characteristic and distinctive features of the Yaws eruption in the earlier stages of the disease ; and, *secondly*, to point out the lamentable sequelæ that are apt to supervene among a poor population when the malady is neglected and mistreated.

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In connection with these objects, I gave some reasons for my belief that the serious endemic of Ceylon, known as the "Parangi disease," and which has long occasioned such grave and fatal consequences in that fine Island, is *allied* to the Yaws of the West Indies; and, at the close of the article, I alluded to the "Coko disease" of Fiji as belonging to the same nosological family. The profession are much indebted to Dr. Macgregor, the chief medical officer of the new colony, for the excellent first report he addressed to the Governor, Sir Arthur Gordon, on December 24, 1875, and a copy of which was received by the College of Physicians from the Colonial Office about the middle of last March. From this very instructive document the following descriptive account of the outward symptoms of this malady is derived :—

The eruption in young children, among whom it most frequently occurs at first about the corners of the mouth and about the fundament, might be mistaken for a commencement of *Herpes;* but it soon appears as if a small soft condyloma was developing itself. It becomes slightly elevated, the epidermis separating from the cutis, and a small quantity of sero-purulent matter gradually forming on the top of the latter, and giving the sore a peculiar whitish-yellow colour. At the same time there is a circumscribed effusion of lymph going on into the cutis, which thus eventually forms tubercules of greater or less size and elevation.

This pustulo-tuberculate eruption may become scattered over the whole body; as a general rule, it is very notably so over the face, round the mouth, nostrils, and eyes, and about the neck. The tubercules are usually of a circular form or elongated, with rounded corners, varying in diameter from two inches downwards, and elevated above the surrounding skin sometimes as much as half an inch. Occasionally they are ring-shaped, with a spot of unaffected skin in the centre, and sometimes, by the coalescence of several contiguous tubercules, an irregular-looking sore may be produced. Individual sores, however, appear to always retain the rounded form.

The characteristic *frambœsoid* fungus or raw-flesh excrescence from some of the tubercules which had become covered with a thin crust, is thus unmistakeably described :—

This crust is easily removed, usually coming off entire like a cap from the top of the tubercule. Beneath it there is a small quantity of purulent matter, through which protrudes what appear to be papillæ of the true skin, very much enlarged, standing up separately, sometimes an eighth of an inch in length, the brightness of their hue appearing in strong contrast with the creamy fluid bathing their almost contiguous bases.

That the occurrence of genuine cases of Yaws may occasionally be met with in other countries besides those that have already been mentioned, is rendered more than probable by the following two instances. The *first* was seen in Madeira by Dr. Adams towards the end of last century, and is described in his work on "Morbid Poisons." It occurred in a young Danish nobleman in the Danish Navy, who had been left at Madeira in consequence of his health not permitting him to continue his voyage to the West Indies, from which he had been ten months absent before he felt any indisposition. After some febrile symptoms a pimply eruption broke out over the face, accompanied with inflammation of the throat. The eruption extended over the whole body and the extremities, and the papulæ became pustules. The pustules increased in size, and became covered with crusts generally of a light-brownish colour. As the crusts hardened, this gave them the aspect of tubercules; some of them had quite a horny appearance. "On removing the scabs, a fungus, covered sometimes by a thin cuticle, was found shooting out of the foveolus. If in the early stage of the pustule you remove the cuticle, you are to expect a ragged but moist slough. In a later stage, on removal of the scab, you find a fungus, varying in shape, size, and colour, according to the period of the Yaw." The throat affection had also become ulcerative.

The local irritation caused by the numerous sores rendered life scarcely tolerable. Within a month or two from the commencement of the eruption, there were, besides a number of smaller ones, fifty-six large sores, some oval, and being of from two to three inches in their longest diameter. That the case was one of genuine Yaws was attested by Dr. Wright, an experienced West India physician, who happened to be in Madeira at the time. "At the end of six months from the first symptoms of fever, and of four from the eruption, most of the pustules had scaled off, and the throat was nearly well." This satisfactory result seems to have been entirely due to the resources of the patient's constitution, which had merely been supported by suitable food and the exhibition of the mildest medicines. At first mercury had been administered, but, on being found to disagree with the patient's health, its use was soon discontinued, and never resumed.

The *second* case came under my own notice here (Richmond, Surrey) in a personal friend, an elderly gentleman who had been long a resident in this place, and, as far as I am aware, had never, at any period of his life, resided abroad. It was at the beginning of 1873 that I first had an opportunity of partially examining the character of the disease with which he had been for a length of time (one or two years at least, I believe) afflicted. He had been under the treatment of some of the leading dermatologists of the metropolis during this long illness. The following memoranda were jotted down in my note-book at the time :—

On the left side of the occiput is a concave or hollowed circular ulcer, between two and three inches in diameter, and at its centre a third of an inch or so below the level of the adjacent scalp. Its surface is unevenly smooth, and looks like raw flesh without any distinct granulations. The

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margins or edges are somewhat raised up, and here and there are fungiform. There is a profuse discharge of thin whitish pus, devoid of any offensive smell. The ulcer, although causing great annoyance by interfering with the easy decubitus of the head at night, is not the seat of much pain.

The scalp of the right occiput exhibits several small ulcerated openings with fungoid margins, from which there is a copious similar discharge. Occasionally sharp, transient pains are experienced at some of these ulcerated apertures.

On the top of the centre of the forehead is a round, flat, and smooth raw surface, between a shilling and a florin in size, scarcely above the level of the surrounding skin. It oozes out very little discharge, and is without pain even when touched. It supervened upon the falling off of a dry yellowish crust, which had occupied the spot where the raw-flesh sore is now seen. On the centre of the right cheek is a similar smooth raw surface of the size of a fourpenny-piece. The lobe of the right ear exhibits another spot, which looks like a recently vesicated wound.

Over the front of the thorax are several flat raw sores, all very slightly, if at all, above the level of the adjacent skin, and varying in size from that of a sixpence to that of a florin. One at the apex of the sternum is, especially in the centre, somewhat more prominent than the others. Its surface is nearly dry, the discharge being only sufficient to cause the shirt slightly to adhere if ointment has not been applied. All those raw sores seem to have followed upon the falling off of a dry crust. None of them are sensitive on being touched; but they cause much distress by their moist surfaces being liable to adhere to the linen. There are, I understand (having not had the opportunity of personal inspection), several similar raw sores scattered over the back. I observed one, of the size of a sixpence, at the lower part of the nucha.

Over the head of the right fibula is an irregularly round ulcer, between two or three inches across, from which several fungous protuberances, each as big as a large currant or a small strawberry, stand out close to each other, and in the aggregate form an excrescence which looks like a portion of red cauliflower, projecting more than an inch above the level of the surrounding skin. Its surface is smooth and shining, scarcely moist, and not at all painful when touched.

This ulcer had at first, I was told, consisted of two circular smaller ones, each of about the size of a shilling, and supervening upon the detachment of a yellow crust.

Besides the above symptoms of frambœsial disease, the skin of the face, scalp, body, and limbs has been long, and still continues to be, affected with an eczematous eruption, which has left in various places, especially on the cheeks and scalp, scabby exfoliating crusts, and also with squamous Psoriasis-like patches on the extremities.

The patient's pulse is small and weak, about 90. Although his sleep is uneasy and much broken by the irritation of the skin, his general health is not very seriously disordered, and his appetite is fairly good.

Three months afterwards I found the state of the circular excavated ulcer on the occiput nearly as before. One or two of the round, raw spots on the forehead and scalp exhibited new (as well as I could judge from a very imperfect sight of them), slight, fungus-like granulations on their surfaces.

The ulcer on the right leg, previously occupied with very projecting excrescences, was now rather concave, and somewhat hollowed out in the centre, while the surrounding integuments had become much elevated, with a broad an inch or so in breadth) and flattened ring of dense reddish induration, which was half an inch at least above the level of the surrounding healthy skin.

The former irritation of the general surface had, the patient remarked to me, for some time much subsided since he had discontinued the medicine which he had been previously taking, and since he had been put by the advice of another medical attendant on a more nourishing diet, with the free use of bottled stout. Although my examination of him was very brief and imperfect, the impression left on my mind was that he had been decidedly loosing ground, and that the case would ere long issue unfavourably.

When I next saw him at the beginning of May, he was much weaker, and his feet and legs had begun to be œdematous. I saw no part but the face, from his being muffled up completely. The nose was much swollen, and seemed to be the seat of purulent exudation all over, and most of the face that could be seen was covered with dry yellowish scabs or crusts. From this date his weakness gradually increased, the œdema became greater, and he sank at length exhausted about the middle of June. I understood from a non-professional friend who continued to visit him to the end, that the occipital bone had become exposed at the bottom of the ulcer in that region for some time before death.

To the best of my knowledge, the above is the first recorded case of recognised Yaws disease in this country. Bateman had evidently not met with an instance; for in his "Classical Synopsis" (1824) he remarks that "as it is perhaps never seen in England, a very brief account of it here will be sufficient." I much regret that I had no authentic account of the early phenomena of the eruption, or of the patient's condition of health before and at the time of this occurring. All that I learned from him was that in the summer of 1871 he had begun to suffer from boils in various parts of his body, and that one large and troublesome one occupied one of the cheeks, and that there was another situated on the occiput. It would seem also that about the same time he was affected with an eczematous affection about the face and in other parts. Neither can I state with any confidence what opinion or opinions as to the nature of the disease had been formed by the different medical men under whose care he had been during the two years and upwards that he had been an invalid. The non-professional gentleman, alluded to above,

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told me that he had heard the terms "epithelioma" and "cancroid" mentioned in connection with the case. Beyond this I can say nothing. As regards the medicinal treatment during the last six months of the patient's life, I shall briefly allude to it when I come to consider this very important part of my subject.

[November 23, 1878.]

No. III.

THE circumstances which first drew my attention to the consideration of the "Parangi" disease of Ceylon, and which have continued to excite my interest in the subject, may deserve to be recorded, as bearing on the important question of the geography of diseases. In the autumn of 1871 the College of Physicians wrote to the Colonial Office, in reply to a request made by Lord Kimberley, then Secretary of State, for its opinion in respect of the possible risk of Leprosy being ever propagated by vaccine lymph taken from children hereditarily tainted with that disease. This alarm had been suggested in a recent report of Dr. Bakewell, the Vaccinator-General of Trinidad, to the Governor of that colony, who had of course forwarded it to Downing-street.

On receiving the answer of the College,* Lord Kimberley directed that a Circular Despatch (October 16, 1871) be sent to various colonies to ascertain the results of their medical experience in regard to this alleged possibility of the transmission of leprous disease by vaccination. Ceylon was one of these colonies; and among the replies received from that island was one from Dr. Loos, Colonial Surgeon in Colombo, who, after stating that he had never met with any instance where there was "any, even the slightest ground for supposing that Leprosy has been derived from vaccination," goes on to say—"Opinions have been freely expressed in this country that the Parangi disease, endemic here, is capable of being propagated by vaccination, although it has not fallen within my experience that the disease has ever been communicated. As there is, however, a possibility of the disease (deemed contagious in this country) being so communicated, the vaccinators, who are unprofessional persons, are enjoined to select as vaccinifers children who are not only themselves healthy, but whose nearest relatives are free from the affection."

Having been abroad on my mission to the West Indies during the latter half of 1871 and the first half of the next year, I did not see any of the replies to the Circular Despatch until August, 1872. In my reply to the letter from the Colonial Office transmitting these replies, I expressed my entire ignorance of the endemic disease of Ceylon mentioned by Dr. Loos, and my desire for further information respecting it. It was in the summer of 1873 that I received a copy of Dr. Loos's printed report on the "Parangi disease," enclosed in a despatch from Governor Gregory. In my letter acknowledging the receipt of this interesting document I stated: "I have been much struck with the marked analogy in various respects of this Ceylon endemic with the disease of Yaws in the West Indies. Whatever throws light on the one will doubtless serve to elucidate the other."

In the following year (1874), at the request of Dr. Tilbury Fox, who was then engaged on the work prepared by him and Dr. Farquhar, "On Certain Endemic Skin and other Diseases in India and Hot Climates generally," I wrote a brief account of the "Parangi disease," derived from the recent official reports upon the subject by Dr Loos and by Dr. Danforth, the Assistant Colonial Surgeon, and I then took the opportunity of expressing my surmise that the disease might probably be found on further inquiry to be not confined, as hitherto suspected, to Ceylon alone among our Eastern possessions.

"Hitherto, as far as I know," I then remarked, "this form of indigenous cachexy has been only recognised and described in Ceylon, but I strongly suspect that the Parangi disease, or something much akin to it, will be found to exist in many other parts of our Indian Empire, as well as of the East generally. It certainly bears resemblance to some endemic forms of cachectic disease in the Western hemisphere." In the early part of 1875 I received from the Colonial Office copies of several documents relating to the subject. Among these was a letter of Dr. Loos to Governor Gregory, in which he admits that "there are many points of similarity [between the two maladies], and the description of Yaws, as regards its progress and consequences, and the insanitary conditions under which it prevails, would apply in a very striking manner to the endemic disease in this country."

My first paper on "Yaws and some Allied Diseases" appeared in the *Medical Times and Gazette* of November 4, 1876, and the second one in that journal of February 17, 1877. In the latter was given a description of the "Coko disease" of Fiji, from the account of that endemic in the report of Dr. Macgregor, the Government Medical Officer of the new colony, a copy of which was sent to the College of Physicians by the Colonial Office, and wherein the Yaw character of the disease was distinctly recognised.

The latest communication from abroad, bearing on the subject, which I received only a few weeks ago, is the following extract from the recent printed report of Dr. Kynsey,

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* The letter of the College will be found in my "Report on Leprosy and Yaws in the West Indies," page 85.

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the Principal Civil Medical Officer and Inspector-General of Hospitals in Ceylon, which appears to be a highly interesting and suggestive document:—

In appendix C., under the head of "Diseases of the Cutaneous System," will be found a term used to designate a disease which has hitherto been supposed to be endemic in and peculiar to this colony. It has been in use by the "vedarálas" or native quacks of the Island since the time of the Portuguese; the word simply means "foreign," and is evidently a corruption of "ferengi." The "vedarálas" include under the term a vast number of different forms of ulceration, simple or specific, and many common skin diseases. By some it has been supposed to be syphilitic, by others a form of Leprosy and by a third a combination of the two.

Cases to the number of 680 are included in the hospital returns of the colony; and on my inspections, wherever I have had an opportunity of studying the disease, I have done so, and I am convinced that a great many totally distinct diseases are included under "Parangi;" I have, however, not yet been able to make up my mind whether there is a disease in Ceylon which cannot be included under one of the names at present known to medical science, or not.

The head-quarters of the disease seem to be Mullaittívu, Vavuniya-Vilánkulam, Kurunégala, Puttalam, Chilaw, and the southern coast from Galle to Tangalla.

I have identified the following diseases returned as "Parangi:"— 1, Lupus and various forms of lupoid ulcerations; 2, Rodent ulcer; 3, Syphilitic ulcerations, attacking the hard and soft palates of the nose; 4, cases of hereditary syphilis; 5 Scrofulous ulceration; and 6 (the most curious fact in connection with my inquiries) I have, I believe, recognized the disease known as Yaws in the West Indies as existing in Ceylon. I was led to this latter discovery by reading the very able report by Dr. Gavin Milroy on Leprosy and Yaws in the West Indies, that gentleman's reply to Colonial Surgeon Dr. Loos, forwarded through the Colonial Office, and his contributions on the same subject to the *Medical Times and Gazette*.

I will merely add one remark, in conclusion, that although in the Yaws of Ceylon characteristic elevated rupia-like crusts are well marked, I have up to this failed to find the raspberry-like fungus appearance beneath. After healing, the very dark stains on the dark skin are invariably found. It will be interesting to ascertain if the peculiar scars, cicatrices, contractions of joints, and deformities, so frequently seen in our hospitals in certain districts of the Island, are due to this curious disease, hitherto considered to be unknown in this Island. It will also be strange if the disease is confined to Ceylon, and unknown on the continent of India.

I have been unable hitherto to trace the connexion between the Yaw eruption and its after results, but I have interested several of my officers in the inquiry, and have no doubt I shall be able to report more fully on a future occasion.

I may add that, as far as I have been able to ascertain, there seems to be no connexion between the disease, which I consider Yaws, and Syphilis.

In respect of these interesting remarks of Dr. Kynsey, I would observe that although he (and Dr. Loos also, I believe) has hitherto failed to discover the *frambœsoid* fungus in any of the cases of "Parangi" in Ceylon examined by him, the absence of this symptom is by no means unfrequent in many of the old and neglected instances of Yaws in the West Indies, when the disease had passed from its earliest stages and lapsed into the form of aggravated cachexia with diverse morbid sequelæ in the integuments and deeper tissues. This was the case with most of the chronic examples which I met with in Dominica, and such as are described in my report (page 53). It is also to be remembered that the *frambœsoid* appearance of the cutaneous disorder in its early stages is by no means uniformly the same. Dr. Imray of Dominica, in his valuable memoir, contained in my report (page 72 to 83), thus describes it:—

The ordinary Yaw excrescence is not unlike a piece of cotton-wick, a quarter of an inch (more or less) in diameter, dipped in a dirty yellow fluid, and stuck on the skin in a dirty scabby, brownish setting, and projecting to a greater or less extent. This comparison is not so elegant as that of a strawberry, but I believe it to be more appropriate to the loathsome eruption, and more exact. It is true that there are sometimes red spots or streaks on the yellowish surface of the Yaw fungus, but this appearance, instead of being general, I have only found exceptional."

What Dr. Kynsey says as to the unlikelihood of the Parangi disease being "confined to Ceylon, and unknown on the continent of India," the same thought occurred to my mind, and I had accordingly drawn the attention, at the beginning of the present year, of my friend, Dr. Cunningham, the Sanitary Commissioner with the Government of India, to this very point, in connexion with the large official investigation of Leprosy now being carried on, under his superintendence, throughout the peninsula, and which promises most valuable additions to our knowledge of that disease, and of other forms of cachectic malady among the numerous and widespread populations of that immense region.

One other remark of Dr. Kynsey calls for notice. He remarks that, "As far as have been able to ascertain, there seems to be no connexion between the disease, which consider Yaws, and Syphilis." This entirely accords with the conclusion to which I came from my personal observations in regard of the genuine Yaws in the West Indies, viz. that it is essentially and altogether distinct from Syphilis, contrary to the opinion of Dr. Copland and many other writers, English and French, although it may certainly in some cases be associated and co-existent with this disease; and then the two-fold morbid influences will most seriously aggravate and intensify the deterioration of the general health.

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The rightful determination of this question has, of course, most important bearings on the practical *treatment of Yaws*. An immense amount of mischief has unquestionably arisen from the belief that it is of syphilitic origin, and that mercurial preparations must be the proper remedy for its cure and removal. Unfortunately, this belief—which must have been primarily due to medical opinion, and for which, therefore, the latter must be held responsible—has become generally accepted among the uneducated inhabitants of the West India colonies, and hence all the popular nostrums, which are sold in the shops of chemists and other traders for the cure of Yaws consist mainly of this most pernicious drug, when indiscriminately resorted to. As to the proper mode of treating the disease, the remarks of Dr. Bowerbank, of Jamaica, as given in my report (pages 60, 61) appear to me to be most judicious :—

In the primary stage the needed treatment is of the simplest description. The patient should be kept within doors in a well-aired room, suitably clothed, have light nourishing food, a daily warm bath, and some simple vegetable tea, as of sarsaparilla, lime leaves, or lemon grass. Exposure to wet and cold must be avoided until the eruption is fairly developed, so as not to run the risk of its being repelled or driven in. When the Yaw tubercles or excrescences are large and full, the skin must be kept clean by daily washing ; but no undue friction or handling of the excrescences must be used. When they are flabby and unhealthy, a more nourishing and stimulating diet is required, and the internal use of sulphur, guaiacum, and camphor is beneficial. Mercury is often used to hasten the dispersion of Yaws, but it is always to be very carefully given, and a much safer and quite as effectual remedy is the iodide of potassium. This may be given in any stage. As unwholesome and innutritious food most seriously aggravates the course and progress of the disease, and the want of personal and domestic cleanliness has a like injurious effect, too much attention cannot be paid to the diet and to general hygiene.

Dr. Bowerbank adds the following instructive observations :—

Of all diseases with which I am acquainted, I know none so easily and so seriously affected by external circumstances and injudicious treatment as Yaws. During the earlier stages the eruption is very liable to be repelled or "driven in," as by exposure to cold with insufficient clothing, exposure to night air, or injudicious bathing in the sea or in fresh water, excessive purging, the accession of the different exanthemata or of other acute diseases, the abuse and too early use of mercury.

In persons predisposed to Leprosy, Scrofula, Syphilis, &c., when attacked by Yaws, its course is often irregular and protracted; in fact. the system appears unable to cast off the disease. Efforts are made and repeated at long intervals, but sometimes unsuccessfully, till at last the latent disease becomes roused into action, and a most destructive ulcerative process takes place, crippling and deforming the body and at last destroying life.

The history of the two cases, one in Madeira and the other in this country, recorded in my second paper (*Medical Times and Gazette*, February 17, 1877), however imperfect in the details, is significant in respect of the treatment of the disease. In the first case the patient recovered, after the discontinuance of mercury, under "the use of suitable food and the exhibition of the mildest medicines;" while, in the second, the health gave way, and the patient sank in consequence, as I believe, of the protracted and inordinate administration of mercurials.

The general result of my observations in the West Indies is given in my report, page 63, in these words :—

From all the evidence that has been now adduced, we may fairly infer that, although there yet remains much respecting the origin and attributes of Yaws, requiring more accurate investigation than has yet been applied to the subject, everywhere it is fostered, if not engendered, amid poverty and its ordinary accompaniments of squalor and semi-starvation. Proofs of this were given me alike in Berbice, Dominica, and Jamaica. Yaws is thus obviously another member of that multiform brood of evil known by the family name of "*mal de misère.*"

As to the part which contagion plays in respect of the origin and spread of the disease, this is still ambiguous. I would earnestly suggest to Dr. Kynsey to have his attention especially drawn to this point in regard of the Parangi disease.

Before closing this article, I would invite the notice of the reader to some instructive and very pertinent remarks of Dr. Tilbury Fox on subjects somewhat kindred to what I have been considering in the previous pages :—

We have long been of opinion that several forms of ulcerating furunculoid diseases were the outcome of a cachexia, induced by insanitary influences attached to certain unhealthy climes. Before leaving the subject of Delhi sore and its allies, we desire to add a few special observations relative to the general question of endemic cachexia. The statements and facts recorded in the preceding section go to show that in many parts of the world, and emphatically so in hot and and unhealthy climates, the nutrition of the body becomes seriously depraved under the influence of various combinations of defective hygiene, bad feeding, malarial and other poisonings, great alternations of temperature and humidity ; and certain diseases of the skin, of a more or less ulcerative type, are considered to be developed in consequence. Now, while such endemic diseases exist. it is but natural to regard them as peculiar to the localities in which they are observed, and as being induced by causes specially at work therein. But the time has arrived for a fuller recognition of the fact that many of these endemic or indigenous cachectic diseases bear the closest resemblance to each other in their main features, and fall together very naturally into a common group or class of endemic or indigenous cachexiæ ; and, moreover, that many of them, supposedly

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distinct, are in reality one and the same thing, but are known however under different designations. These remarks apply particularly to "Delhi boil," "Moultan sore," "Aleppo evil," "Biskra button," Yemen and Aden "ulcers"—also to the Parangi disease of Ceylon.

Dr. Geber, of Vienna, at Hebra's suggestion, made a long stay at Aleppo for the purpose of studying the "Aleppo evil," and he concludes that there is no such disease in reality as "Aleppo evil." The many cases of the disease which he saw from time to time were either syphilitic, lupoid, furuncular, or eczematous."*

These observations of Dr. Geber accord in a striking manner with those of Dr. Kynsey in respect of the diverse forms of disease which are grouped together under one general term in Ceylon, viz., "Parangi."

Besides these three foregoing articles, there are my articles in the Medical Times of October 11 1879 & of February 21. 1880 & of June 26 1880

The last of wh. contains references to articles in the French Dictionaire of Rochard

J. R. Rocher

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* "On certain Endemic Skin and other Diseases in India and Hot Climates generally." By Tilbury Fox, M.D., and T. Farquhar, M.D., 1876, pages 18 and 21.